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THE
OPHTHALMIC RECORD

A Monthly Review of the Progress
of Ophthalmology.

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A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, JANUARY, 1906. VOL. XV. NO. 1, NEW SERIES.

Original Articles.

TWO SPLINTERS OF STEEL REMOVED FROM THE INTERIOR OF AN EYE WITH THE MAGNET.

WM. R. MURRAY, PH.B., M.D.
MINNEAPOLIS, MINN.

The use of the electro-magnet for the removal of pieces of steel or iron from the eye has become so general that the removal of a foreign body in this manner arouses no particular interest, but, as the case which I am about to report is the first which has occurred in my experience, in which two separate pieces of steel entered the eye at the same time and apparently through the same wound of entrance, and especially as I was unaware of the presence of the first piece until it was withdrawn by the magnet, I have deemed it worthy of publication as illustrating the necessity of extreme care being exercised in our search for foreign bodies within the eye, and that we should bear in mind the possibility of there being more than one penetrating agent.

M. S., aged 29, blacksmith by occupation, was injured Oct. 30, 1905, while removing a shoe from a horse, a piece of steel striking the right eye. Patient did not experience much pain at the time of the accident, and continued with his work until night. Two days later the patient consulted Dr. F. J. Pratt, who found a penetrating injury of the right eye, the wound of entrance being in the upper nasal quadrant of the cornea. There was an iritis present, the patient at that time complaining of considerable pain.

The case was referred to me for the removal of the foreign body.

Examination of the eye showed a wound of entrance in the upper nasal portion of the cornea, and immediately back of it a bulging of the iris, as though a foreign body were imbedded in the iris tissue. The point of the giant magnet was applied at the site of the corneal wound and directly over the foreign body, but I was unable to draw it out of the iris tissue. After "making and breaking" the current a number of times, a small splinter of steel appeared at the corneal wound and attached itself to the magnet point and was removed. Believing that there still remained a piece of metal in the iris tissue, and being unable to dislodge it by applying the magnet point to the corneal surface, I made an incision at the upper corneo-scleral margin and passed the tip of a hand magnet into the anterior chamber, and by bringing it into contact with the steel I was able to free the foreign body from the iris tissue and remove it through the corneal incision.

The wound healed quickly, and two weeks later the patient returned to work with vision 20/30, with a correcting lens.

My object in reporting this case is to call attention to the fact that there may be more than one foreign body within an eyeball, and I would also call attention, in this connection, to a point which has been referred to by other writers, namely, that a foreign body may be so firmly imbedded in the tissues in the anterior segment of the eye that it can not be dislodged with the giant magnet when applied to the surface of the eyeball, and in this class of cases the hand magnet may possess advantages over the giant magnet by enabling us to introduce the tip of the instrument within the eyeball, and, by bringing it directly into contact with the foreign body, enable us to free it from its attachments and extract it with the least amount of traumatism.

A LACRIMAL SYRINGE.

William H. Wilder, M.D.
CHICAGO.

[Illustrated.]

A reliable, easily manipulated and easily disinfected lacrimal syringe is an important instrument for the ophthalmic surgeon.

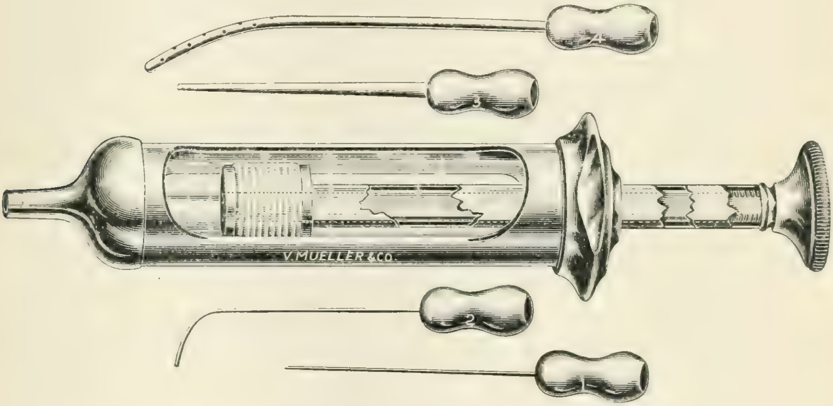
I have found the ordinary syringe of the Anel type more or less unsatisfactory for several reasons. It does not hold enough solution. The barrel being metal, one can not easily tell whether the instrument is working well or how much fluid is in it. The rings on the side of the barrel, and on the end of the piston rod are superfluous, as no great force is required, and frequently they are not in the right place for the fingers after the tip of the instrument has been introduced into the lacrimal canal. If one uses these rings with two fingers and the thumb, he is apt to lose the delicacy of manipulation that is necessary in the treatment of lacrimal cases, or he may do injury by using too great force.

For a number of years I have been using a syringe that has proven quite satisfactory to me and also to several of my colleagues.

There is nothing particularly new or original in this device, for, as will be seen, it is chiefly a combination of some of the best features of any syringe and their adaptation to lacrimal purposes.

The barrel of the instrument is of glass, about the length of that of Anel, but larger. It is held in a metal jacket, made of one piece, to which a collar is screwed at the upper end. The piston is wrapped with asbestos string and is expansible by means of the screw in the piston rod worked by the milled head at the end.

Tips of several sizes are provided and are made with either a slip joint or a screw joint. I prefer the former for the reason that the tip can be so quickly removed if one wishes to refill the instrument or if it is desired to wash out the sac through the perforated canula.



Tip No. 2 is small enough to be introduced into the uncut canaliculus after the punctum is slightly dilated and is very useful for preliminary examination of the duct or for treatment without slitting the canaliculus. At the suggestion of my friend, Dr. Charles H. Beard of Chicago, I have added to the instrument the canula with lateral perforations, No. 4, which being as flexible as a silver probe, can be introduced into the nasal duct, and through it the sac and duct can be thoroughly cleansed. This tip has been found very useful.

The instrument can be manipulated easily, for it is held as one would hold a lacrimal probe.

The collar projects enough to furnish support to the thumb and fingers, while the index finger is forcing down the piston.

The packing of asbestos string can be easily renewed when necessary, and the whole instrument can be disinfected by boiling.

It has been neatly made for me by V. Mueller & Co. of Chicago.

CATARACT CAUSED BY A DISCHARGE OF INDUSTRIAL ELECTRICITY.

E. C. Ellett, M.D.
MEMPHIS, TENN.

J. D., white, aged 35, in the employ of the local electric company, was engaged in working on a fuse box on April 19, 1905, when, through a short circuit, he received a shock from a direct current of 500 volts. At the time he held one end of the cable in each hand, and the muscular contraction produced by the current drew him to the wires in such a manner that most of the injury was received in his face. The left side of his nose and face were burned deeply, but not extensively, as if touched with the ends of a hot wire. His hands were somewhat scorched, but the burning out of the fuse probably saved him more extensive burns. He did not lose consciousness. He was "blinded by the flash," but a rough test an hour after the accident showed that he could see about 20/40. The right eye alone seemed to be affected by the accident, presenting a marked conjunctivitis, with some congestion of the iris. In ten days the eye was white and well, vision 20/20, and I regarded the case as one of electric ophthalmia, such as we often see in workers around power houses, light plants, etc. On July 11 this patient returned, stating that for two or three days his vision had not been good, and the eye was red and painful. There was pericorneal injection, with discoloration of the iris, but the pupil was movable, vision 20/200. Atropia was instilled, and the next day the injection was much reduced, the pupil dilated ad maximum, and showed numerous small white dots scattered over the anterior surface of the lens, beneath the capsule. There was a shiny sort of look to the lens itself, but no opacity except the dots. The fundus was dimly seen. Tension normal, urine 1032, no albumin, no sugar. On July 15 the eye was white, the spots less numerous, but the sectors of the lens clearly defined. July 18, spots still less numerous, opaque striæ seen throughout the lens, vision 20/200. July 30, no reflex, vision, perception of light, no subcapsular spots, but the lens is full of opaque scales, flakes and masses. September 26, lens entirely opaque. The eye presents the usual appearance of mature cataract, and extraction will presumably give a good result.

The left eye is normal, vision 20/20.

A similar case is reported by Desbrières and Bargy.[1] The injury was received from an alternating current of 20,000 volts, producing unconsciousness and severe burns of one side of the body and face. Eighteen months after the injury the right eye showed "some points of opacity, characterized by numerous spots, some punctiform, some linear, spread over the whole surface, especially abundant toward the equator. These opacities were subcapsular." The fundus was normal and vision equal to 8/10. The opacities remained partial and stationary.

These authors refer to a case reported by Brixa,[2] to which I have not had access. The injury caused loss of consciousness, burns of the nose, redness of the lids, photophobia, conjunctival and ciliary redness, mydriasis, and, finally, lens disturbances consisting of numerous fine opacities, and vision 1/28. It seems that electric cataracts, including those caused experimentally[3] and those due to lightning strokes,[4] to which reference is made by Desbrières and Bargy, are of very slow progress and usually partial. My own case was of rapid development, such as always suggests diabetes, and the lens soon became completely opaque.

Just how the changes in the lens are produced is not definitely known. There are to be considered, (1) the chemical alterations of the aqueous, whereby the osmotic processes necessary for the nourishment of the lens are prevented; (2) the destructive action of the current; (3) circulatory disturbances in the anterior segment, and (4) the traumatic influence of the current.

Kiribuchi showed experimentally that the current can cause a subepithelial albuminous coagulation, followed by degeneration of the neighboring fibers, and aqueous penetration, which increases the lenticular opacity. As observed, this was about the train of events in my case, but we must not lose sight of the two distinct attacks of iritis and ciliary congestion, and at the height of the second the appearance of the subcapsular deposits and coincident failure of vision.

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1. Annales d'Oculistique, February, 1905.
2. Klinik Monats. für Augenheilk., November, 1900.
3. Karibuchi: Graefe's Archives, 1900.
4. Gonin: Annales d'Oculistique, 1904.

A TREATMENT FOR TRACHOMA.

J. A. Pratt, M.D.
AURORA, ILL.

If there is any disease known to the medical profession which has received more varied treatment than trachoma I am unable to find it. We have operated, cauterized, medicated, *x*-rayed, and possibly used many methods we might blush to relate.

Until eight years ago I treated these cases by compression, copper, and the usual collyria, with the usual results. At that time a girl of 13 was brought to me with trachoma in the right eye of four years' standing. There was simply light perception from the extreme pannus, the lids were thickened and succulent, with large, clear granulations. The patient had attended the Charity Hospital in Chicago for six months at one time.

From the first of July until the first of March I did three Knapp operations, also many cauterizations. Following the Knapp operations there would be improvement for about two weeks, and then a relapse.

On the first of March I thoroughly cocainized the eye and lids; then everted the lids and thoroughly massaged them with boric-acid powder. The massage pressure was made by a cotton wound probe. There was extensive hemorrhage the first treatment, which grew less and less as the granulations decreased. The massage ruptured many of the granulations and filled them with the powder. The partially dissolved powder was allowed to remain under the lids, and the eye was bandaged, and cold applications applied. After three days the treatment was repeated, and the improvement was very rapid. After the first four treatments, which were three days apart, it was decreased to once a week. The last treatment was made the first of June, when the lids were nearly normal and pannus hardly noticeable. She returned July 1 with lids normal and pannus gone. There were practically no scars on the lid and the palpebral conjunctiva seemed the same in both eyes.

Since that date I have treated possibly twenty cases with the best results and improvement from the beginning.

The benefit derived from this treatment, aside from the antiseptic boric powder, is the massage. The results are better than other treatment by not leaving a scarred and rough lid. It is particularly recommendable in acute cases.

While this method of treatment is original, as far as I know, it may have been tried by many; and, if thoroughly done, will certainly bring satisfactory results in the majority of cases.

A NEW TRIAL CASE.

MARK D. STEVENSON, M.D.
AKRON, OHIO.

A good working trial case is one of the chief and much used necessities in every ophthalmologist's armamentarium, but there are some very defective features about most of them. The writer has attempted to have one made at a reasonable expense that would include most of the good features of other cases and also embody some original ideas.

The frames are of the regular size with gold and silver coloring for the respective concave and convex lenses, with screws in handles so that the lenses may be turned or replaced. The rims of the convex lenses are made of a special white metal guaranteed not to rust or tarnish. The strength of the lens is stamped on both sides of the handle, instead of on one side only, so that the lens need not be turned over to learn its number. The handle is so made that it can be readily manipulated by the fingers and so that the lens can be easily rotated when in the trial frame by the finger touching its end.

The cylinders do not have ground opaque sides, but are plain like the spheres, as in some of the cases made years ago. This ground portion of the cylinders found in most trial cases is often very confusing to the patient, and when the lens is rotated, especially if the trial frame is not properly centered, or if the patient changes the position of his head, often leads to grave error. I have repeatedly discovered the patient choosing one position of the lens' axis rather than another, simply because the opaque part of the cylindrical lens was farther from the line of vision in one position than in another. ,The cylinder should be quite free from all this grinding, which serves only to confuse the patient and in no way aids the examiner. This depends upon the peculiar shape of the handle and the fact that there is a slight projection on its end, which makes it easy to move by the tip of the finger.

In most trial cases the axis of the cylinder is very poorly indicated by a light scratch on the glass, often difficult to see except in strong illumination which should not be directly in front of the patient. I have mastered this difficulty by having a small hole, 1 mm. in diameter, drilled half-way through the glass in the line of the axis, 2 mm. from each margin of the lens. This hole is filled with white cement which is very readily seen in any illumination. A distinct scratch is made from this hole to the margin of the lens so that it may be placed exactly opposite any desired axis marking on the trial frame. The hole should not be exactly at the edge of the lens, because it would sometimes be hidden behind the raised rim of the trial frame. The prisms are likewise marked, except that there is only one whitened hole indicating the apex. The manufacturers, Julius King Optical Company, have promised to exercise great care that the lenses be properly centered and the axes correctly marked. The tray, which is removable, contains the following lenses:

Forty-four pairs, each + and — sphericals, running by eighths from .12 to 2.00, by quarters from 2.00 to 5.00, by halves from 5.00 to 9.00, by diopters from 9.00 to 14.00, and from 16.00 to 18.00 and 20.00.

Thirty-one pairs, each + and — cylinders, running by eighths from .12 to 2.00, by quarters from 2.00 to 5.00, and by diopters from 5.00 to 8.00.

Seventeen prisms as follows: 1 pair, each ½, 1, 2, 3, and 4 degrees; one lens, each 5, 6, 8, 10, 12, 15, and 20 degrees.

One Maddox double prism, 1 colored multiple Maddox rod, 2 stenopaic discs, 1 solid black disc with gold-plated rim, 6 smoked discs, shades 1 to 6, 1 red and 1 blue disc, 2 cross-line discs for pupillary measurements, and 2 chromatic test lenses and 1 plane disc.

The case is covered with seal-grain leather. The partitions are also made of leather, which is much to be preferred to plush or wood.

THE COMPLETE ABSORPTION OF A PANNUS TRACHOMATOSUS BROUGHT ABOUT BY TYPHOID FEVER.

REPORT OF A CASE.

Frank C. Todd, M.D.
MINNEAPOLIS.

J. W., female, age 18, consulted me Feb. 27, 1903, giving a history characteristic of trachoma with corneal complications which had existed for several years. There was present on each eye a very dense pannus, so dense that no clear cornea could be seen. The pannus was not very active, was grayish-red in color and very thick. I supposed, from the appearance, that there was much corneal opacity (of a cicatricial nature) under the pannus. Judging from subsequent events, the opacity was evidently caused, however, by infiltration of the substantia propria with lymphocytes.

The vision was reduced to shadows in both eyes. There were red granulations on the palpebral conjunctiva and the bulbar conjunctiva had become congested. She was put on the customary local surgical and medical treatment for the trachoma, with some unsatisfactory but gradual improvement. It was not considered wise, in the condition of her eyes at that time, to resort to jequirity, and the thick covering to the cornea decreased but little, the vision to a corresponding slight degree. Probably ulceration of the cornea was present, but hidden by the thick covering. She was placed in the hospital for treatment. While there the progress was slow and unsatisfactory until she contracted typhoid fever. During the course of this disease no treatment other than the use of a boric acid solution was resorted to, it not being desirable to disturb her, and it was thought that the continuance of the atropin, which we had been using previous to the attack, would be detrimental to her health. She ran a rather severe course of typhoid.

During the entire course her eye disease steadily improved, the pannus on the cornea disappeared entirely within two weeks after the inception of the typhoid, and I was much surprised to find both corneæ quite transparent. One ulcer had so thinned the cornea that when the pannus uncovered it the cornea bulged, and paracentesis became necessary. The ulcer healed rapidly, leaving a strong cornea with a small opacity. The trachoma follicles on the lids disappeared, and when she recovered from the typhoid her eyes were quite well; there remained only some conjunctivitis, but she has never had a recurrence of the corneal trouble nor have the granulations returned, though the lids were treated for some time afterward on account of the conjunctivitis, and she was kept under observation for six months, at which time the vision had so improved that she was enabled to take a position where she was required to write all day. When examined lately, Nov. 26, 1905, her vision was as follows:

R. 20/200 20/50 — w. — 1.50 ◯ — 2.00 ax. 50;
L. 10/200 20/200 — w. — 4.00 ax. 65.

Reads Jaeger No. 1.

While gonorrheal infection of the eye or purulent ophthalmia artificially produced by jequirity will cause the disappearance of a pannus by the production of a violent acute inflammation, here we have a general infection bringing about the same result without the production of an acute inflammation, for even the inflammatory condition of the eyes, present at the time of the typhoid infection, subsided as the typhoid disease advanced.

I discussed this case with Dr. S. Marx White, assistant professor pathology at the University of Minnesota, who has, at my request, written the following explanation:

"As a possible explanation for the disappearance of a pannus trachomatosus during the course of typhoid fever and convalesence therefrom I have only this to suggest: The essential lesion of typhoid appears to be a diffuse endothelial proliferation. The proliferation of these endothelial cells takes place not only in the intestine and viscera, but, as Mallory has shown, in remote parts of the body and cells which are produced, become actively phagocytic, taking up red blood cells, lymphocytes and other materials. The pannus in your patient, as I understand it, was one in which there had been consider-recession and many of the blood vessels were very narrow. It would seem likely that this might be a point at which the typhoid toxin would have an especially favorable opportunity for action and that there was produced a considerable proliferation of endothelium, these cells becoming actively phagocytic, and after their formation in this region, capable of removing very largely the foreign tissue in the cornea. This seems to me a likely explanation and the only one which I have to offer."

THE
OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, JANUARY, 1906. VOL. XV. NO. 1, NEW SERIES.

Editorials.

THE PATHOLOGY OF PARENCHYMATOUS KERATITIS.

The use of the electro-magnet for the removal of pieces of steel sure, with the signs of inherited syphilis, but otherwise perfectly healthy, is so mysterious and often so dreadful an affliction that any serious contribution to our knowledge of its nature must hold our attention. We, therefore, take the liberty of excerpting from the *Klinische Monatsblätter für Augenheilkunde,* August, 1905, p. 168, the following account of Elschnig's researches in this connection, reported at the recent Heidelberg meeting:

"He examined microscopically the eyes of an 8-year-old girl, who, seven weeks before, had been attacked in the left eye by typical parenchymatous keratitis from hereditary syphilis, while in the right the attack had begun only three weeks before. The examination, as illustrated by numerous microphotographs, showed that the keratitis in this case was primary, that is, without any antecedent marked changes in the uveal tract, being accompanied only by relatively insignificant symptoms of inflammation in the uvea (slight accumulations of round cells in the iris, diffuse in the first eye and focal in the second). In circumscribed, quite irregularly distributed foci in the cornea the following changes were observed: 1. Numerous lymph spaces in the normal parenchyma contain, instead of the ordinary corneal corpuscles, two to three nuclei resulting from a division of the former, also a few mononuclear round cells. 2. The lymph spaces are widened and filled with a finely granular mass stained bright blue with hematoxylin, containing the degenerating nuclei before mentioned. 3. The much dilated lymph spaces run into one another in broad lines filled with finely granular detritus and fragments of nuclei, together with very sparing, well-preserved nuclei; the divisions between these spaces show mucoid softening, staining deeply with hematoxylin. 4. At circumscribed points the normal corneal tissue is replaced by knotted coils of proliferated corneal corpuscles, often without any perceptible substance between them: at other points, apparently at older foci, showing a fibrillar network between them. 5. Extensive areas of vascularization, in which, along with the changes described under 4, the almost atrophic lamellæ are filled with round cells.

"The epithelium is highly atrophic, being represented almost solely by the superficial layer of the flat cells and a layer of more or less necrotic cuboid cells, freely interspersed with round cells. At the margin, more above than below, there is a pannus-like layer of tissue with very abundant round cells, this taking the place of the membrane of Bowman and the superficial corneal layers.

"The membrane of Descemet is intact; the endothelium extensively atrophic or wanting.

"At one point near the margin of the right cornea and in numerous spots of the left one (the first affected) are found a number of areas immediately in front of the membrane of Descemet in which the corneal tissue is replaced by very abundant nuclei (proliferated corneal corpuscles), with sparing round cells intermixed with abundant products resembling giant cells, also typical giant cells; no epithelioid cells. Stain for bacilli negative. In the first affected eye the uvea is only moderately filled with round cells, but in both eyes there are numerous large arteries, with hypertrophy of the intima. In the other eye numerous obliterated vessels of the sclera and episclera, as well as the plexus of Schlemm, are surrounded by a thick layer of round and spindle cells and are obliterated at places.

"Parenchymatous keratitis, therefore, is not, strictly speaking, a syphilitic disease. It begins with an increased division of the corneal corpuscles (together with, in all probability, an increase of the wandering leucocytes). The cellular elements then swell up and degenerate. Where this process is more pronounced the corneal layers then become necrotic and are replaced by proliferation of the corneal corpuscles, the new vessels apparently serving only for nourishment and not for the production of connective tissue. The cause of the cellular necrosis is by no means to be sought in a primary disease of the endothelium of the anterior chamber, but is undoubtedly the result of a disturbance of nutrition either occurring in a purely mechanical way from syphilitic endarteritis (in the episclera, conjunctiva and uvea) or from a pathologic condition of the lymph (syphilitic toxins)."

In the discussion, Stock of Freiburg showed two drawings of interstitial keratitis with hereditary syphilis, in which, in both cases, a defect of the membrane of Descemet was present, concluding from this that the disease could begin with an internal ulcer as the primary lesion.

With reference to Elschnig's idea that interstitial keratitis could not be due to localization of the syphilis germ in the cornea, since, if this were the case, the germs could not wander through the cornea to the place of localization without causing opacities, Axenfeld remarked that the bacillus of leprosy had been observed to wander through the clear cornea and cause infiltrations only at some distance from the periphery.

Birch-Hirschfield mentioned having found conditions precisely similar to those reported by Elschnig from exposition of the cornea to the ultra-violet rays.

Laqueur objected to the division into vascular and non-vascular forms, claiming that in syphilitic keratitis one could always find fine vessels in the cornea, although sometimes they were very scarce.

Elschnig, in conclusion, stated that he had not attempted to deal with the localization of the syphilis germ. With regard to Laqueur's criticism he could report at least two cases of his own in which, with syphilitic interstitial keratitis in vessels, could be observed in spite of extended observation and the use of the highest magnifying powers.

TREATMENT OF TRACHOMA.

In Dr. Brawley's communication on Dr. Kuhnt's treatment of trachoma, published in the October issue of this journal, he states that Kuhnt believes that he "has spoken the last word upon the subject of trachoma treatment." Were this true it would be a sad truth, for his treatment, as outlined in Brawley's paper, is too severe for one to think about without a shudder. All three methods, medical, mechanical and surgical, employed by Kuhnt, are unnecessarily severe. Trachoma, in none of its stages, should be treated by sticks of alum and copper, nor do nitrate of silver and protargol constitute the best agents for the treatment of trachoma, whether recent or old.

Kuhnt's operative treatment of more severe recent, or acute, trachoma and of chronic cases is severe and at least a part of it should be condemned. The least objectionable surgery, as practiced in Kuhnt's clinic, is expression. The writer formerly did expression with Knapp's roller forceps quite often; and there was a time when he resorted to grattage, but he has not resorted to either of these agencies within the past five years. The remote results of the excision of the folds alone, or of the tarsal plates alone, or of both together, must be bad, and yet we are told that about ten of these operations are done daily in Kuhnt's clinic. There is but little danger that this practice will become general, and it is not probable that it will be perpetuated even for a single decade.

To tear down one superstructure without being ready to erect another and a better one would be folly. The plan of treatment, simple, efficient and almost painless, about to be outlined, should replace the Kuhnt method and all other methods akin to it. The new treatment has been in constant use by the writer for the past four years, and practically with unvarying success. Just four years ago, in the Protestant Orphan Asylum near Nashville, there were, in all, fifty-seven children, fifty-two of whom had trachoma. Some of the cases were very severe, while others were slight. These cases had developed from a single focus—a little child admitted a few months before whose trachoma was not detected at the time of admission. The same prescriptions were given all and the matron was instructed how to use them. At the end of two months all treatment was discontinued, for every patient was cured. The thoroughness of the cure is emphasized by the fact that the disease did not recur in a single case, and that this institution has been free from trachoma from that time until now. In a larger institution, the Masonic Widows' and Orphans' Home, near this city, there was a greater number of children affected with trachoma. Some of these cases were chronic, but most of them were recent; some of them were very severe, while others were mild. The treatment so effective in the other institutions one year before was adopted in the Masonic Home, and the results in the recent cases were just as satisfactory. Some of the older cases were more stubborn; but, even in these, recovery was not much prolonged. Three months after beginning the treatment nearly all the cases were pronounced cured. This was about three years ago. A telephone message from the management this morning imparts the pleasing information that there has been no trouble since.

From one to four cases of recent trachoma in private families have not been uncommon in the past four years—it would be more nearly correct to say that they have been very common. In all of these cases the treatment to be outlined was given, and the results have not often been disappointing. In none of these cases has surgery been resorted to. The only mechanical treatment in any case has been rubbing the everted lids twice a week with 1 to 1,000 bichlorid in normal salt solution, and this only in the more rebellious cases and cases that have become chronic. Many of these cases treated have been as bad as the one depicted in May's fourth edition, figure 115, opposite page 96, and some of them have been more pronounced.

The plan of treatment consists in giving the patient, for home use, four prescriptions, each compound to be used only once in every 24 hours. These prescriptions follow in the order in which they are usually written:

(1) ℞. Suprarenal liquid with chloretone.
Sig.: Put two drops in each eye every morning.
(2) ℞. Hydrastin (alk.) ....gr. ii
Acid acetic..................................gtt. iii
Zinc acetate
Copper acetate, āā..........................gr. ii
Distilled water ....℥i
M. Sig.: Put two drops in each eye at noon.
(3) ℞. Bichlorid of mercury......................gr. 1/7
Zinc chlorid ....gr. i
Distilled water ....℥i
M. Sig.: Put two drops in each eye every evening.
(4) ℞. Europhen ....gr. iv
Lanolin
Vaseline, āā....................................ʒii
M. Sig.: Put some in each eye at bedtime.

In addition, in stubborn or long-continued cases, the following solution is applied, at the office, to the everted lids, twice a week, by means of absorbent cotton wrapped around the end of a toothpick or probe:

(5) ℞. Bichlorid of mercury.........................gr. i
Chlorid of sodium.........................gr. vii
Distilled water ....℥ii

Old cases, in which there is pannus, with or without corneal ulcers, are best treated with infusion of jequirity, ten or twelve finely powdered beans to the ounce, two drops to be instilled every morning until the false membrane can be seen on the palpebral conjunctiva. In some of the cases a half-bean, finely powdered, to water, one ounce, continued for a long time, accomplishes a good cure. This, like the stronger infusion, should be used only once a day. In either strength the infusion should be renewed every ten days to two weeks. G. C. S.

THE SURGICAL TREATMENT OF SQUINT.

It is a fair supposition that ophthalmology has advanced in the past decade and, reasoning *a priori,* we may state that it has advanced in many certain lines, at the same time as we read many excellent articles on the subject of the motility of the eye, particularly in reference to the subject of fixed squint, either convergent or divergent, we may well ask, Has ophthalmology advanced along this line? The answer is yes, undoubtedly so, but in the treatment of this deformity it seems to the writer that it stands to-day almost the same as that of two or three decades ago. In other words, we may state that the surgical treatment for strabismus is the same to-day as formerly by reason of the fact that all surgical procedures seem to be based on the principal that the case presents certain deviations of the optic axes, and an operation is advised for its correction, regardless of what may be the conditions of the case under consideration. We do not take into consideration the visual acuity, the rotation of the eyes in the field of vision nor the presence of congenital or acquired amblyopia. But the same procedure is advised in all cases. To illustrate, not so many years ago and even at the present time, we were advised, in a case of squint, to perform tenotomy on one of the interni—generally that of the squinting eye—if that did not produce parallelism, then tenotomy of the other eye, and so on *ad infinitum* until the optic axes became parallel, with or without binocular vision as might happen. Then if an overcorrection was produced we were told, "Well, operate and put it back." The next step in our surgical procedure was to first stretch both interni, on the supposition that this would paralyze the action of these muscles, and then to perform a complete tenotomy on the same muscles, followed by a binocular bandage. This is the method of Panas. Other operators, at the same time, tell us not to do the double tenotomy, but to advance both externi, whereby we increase the motility of the eyes and in many cases will correct the squint without a tenotomy. This is the method of Landolt. It has much to commend it to our consideration. But all these procedures, as advanced by their exponents, in no way advise or suggest any thing in reference to what may be any special anatomic features of the case. The object of this writing may, then, be stated in a few plain words, namely, that every case of convergent or divergent squint—when the time comes for an operation—must be studied from the standpoint of what may be the conditions of that particular case. The writer does not think that every case of squint must be subjected to the method of Panas or that of Landolt or any other procedure, but that the visual acuity, the prospect of obtaining binocular vision, the field of vision or the motility of the eyes, the degree of squint and the age of the patient must be considered in all their bearings on the case and then such suitable operative procedure may be advanced with much greater prospect of securing that most desirable condition, true binocular fixation and vision following the operation. F. V.

Reviews.

EYE INFECTION. SECOND HUNDRED CASES, WITH BACTERIOLOGIC EXAMINATION.*

DR. DORLAND SMITH.

[Reviewed by Nelson M. Black, M.D., Milwaukee.]

Dr. Smith's opening sentence is very much to the point: "Bacteriologic examination in infection of the eye occasionally gives plain indications for treatment, and is so often a source of satisfaction in revealing just what enemy we have to fight that we have continued it as a routine procedure. While the really savage infections command our greatest care, perhaps we pay too little attention to the less severe ones, whose potential power for evil may be equally great."

The cases were unselected, all being included in which any attempt at bacteriologic examination was made and occurred in the private practice of Dr. F. M. Wilson and Dorland Smith.

The technic consisted of the examination of "conjunctival discharge collected on very small swabs which had been sterilized at 150° to 160° C. for one hour. After everting the lid, the swab was gently pushed down into the purulent material in the lower cul-de-sac, or used to pick up bits of discharge from the conjunctival surface, great care being taken not to touch the lashes or the edge of the lid. Dry secretion in the inner canthus was avoided. In case of styes, abscesses, etc., after carefully cleansing the surface, the swab was pushed into the incision. The usual routine was to inoculate culture tubes from this material and to make two smears, staining one with methlene blue and one by Gram's method and safranin or with weak carbol fuchsin. In making smears, the pus-covered swab was rubbed very gently over a clean slide, which was allowed to dry in the air before fixing in the flame. Two or more cultures were regularly made, one on agar (reaction + 1.0 to phenolphthalein), and one either Loeffler's blood serum or a similar medium in which human ascitic, pleuritic, or hydrocele fluid was substituted for the serum. Such of the organisms as grew on either of these media, and were also present in any considerable number in the smear, were isolated on agar plates or by successive strokes on blood serum, and their colonies studied. The pure cultures thus obtained were grown on other media and identified by the usual methods.

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* Archiv. Ophthal., vol. xxxiv, No. 5.

"One hundred patients are included, 159 eyes being affected. The cases are grouped as infections of the conjunctiva (65), of the cornea (10), of the lacrimal sac (10), and other cases (15)."

The following table gives the organisms found and whether alone, predominating or associated:

	Alone or Predominatiing.						
	Conjunctival Infection.	Corneal Infection.	Lacrimal Infection.	Other Cases.	Total.	Associated.	Total.
Pneumococcus	12	....	4	1	17	....	17
Gonococcus	3	....	....	....	3	....	3
Streptococcus	3	4	3	....	10	....	10
Staphylococci	13	2	1	6	22	8	30
Micrococci	1	....	....	1	2	2	4
Meningococcus	1	....	....	....	1	....	1
Other diplococci	5	1	....	2	8	1	9
Diplobacillus of M. and A	6	....	....	....	6	....	6
Koch-Weeks B	1	....	....	....	1	....	1
Klebs-Loeffler B.	1	....	....	....	1	....	1
Bacilli belonging to—							
Subtilis group.	5	1	....	....	6	9	15
Colon group	3	....	....	1	4	2	6
Xerosis group	2	1	1	1	5	13	18
Bacilli unidentified	1	....	1	....	2	7	9
No organism	6	1	....	3	10	....	10
Unsatisfactory	2	....	....	....	2	....	2
Leptothrix	....	....	....	....	....	2	2
Bacillus pyocyaneus	....	....	....	....	....	1	1
Total	65	10	10	15	100		

"Of the 65 cases of conjunctival infection, 38 (about three-fifths) were caused by four common germs; 14 by the staphylococcus; 12 by the pneumococcus; 6 by the gonococcus, and 6 by the diplobacillus. In the remaining 27 cases no one organism was especially prominent. Of the 10 corneal cases, the streptococcus occurred in 4; the staphylococcus aureus in 2. Of 10 lacrimal cases, pneumococci and streptococci were present in 7. In 10 cases no organisms of any kind were found.

"The organism most prominent in the smear is the one most likely to be a factor in the etiology of the infection. Whether in any particular case, however, it actually represents the infecting agent is by no means certain.

"As to a bacteriologic basis of treatment, the knowledge of just what germ we have to deal with, of its habits and its possibilities, in addition to the knowledge, not always otherwise appreciated, that we are dealing with a germ process, affects our methods in the mild, as well as in the severe cases. In the selective use of remedies based on the kind of organism present, we have much to learn.

The value of zinc chlorid in diplobacillus infection, of antitoxin in Klebs-Loeffler infection, and of mercury in focal infection with the staphylococcus, are settled facts of therapeusis. Antipneumococcic serum in such pneumococcus infections as serpent ulcer, and antistreptococcus serum in streptococcus necrosis of the cornea and panophthalmitis, have as yet only a theoretical value, but they would seem worthy of trial. Vaselin remains with us one of the most valuable remedies in both conjunctival and corneal infection. Whether it acts by limiting the supply of oxygen or by mechanically separating the conjunctival surfaces and mixing with the germ-laden discharge helps to dilute and remove it, or by protecting sound tissue from invasion or in some other way, we do not know. While any approach to the poultice is uniformly bad, hot water for short periods is useful in any infective process. Some silver salts are also useful. In the multitude of new things we occasionally find some drug or method of real merit, but we are constantly learning what not to use, and what not to do. And the more we know about infection the more we appreciate the importance of mechanical cleanliness and the importance of a gentleness in all manipulations about the eye."

The questions are asked, "Which organisms are pathogenic and which are not, on a basis of human eye infection? May organisms usually non-pathogenic become pathogenic upon occasion? What is the rôle of non-pathogenic organism in the eye?"

THE PERMANENT RESULTS OF SYMPATHECTOMY IN GLAUCOMA.

In the *Ophthalmologische Klinik* of Dec. 5, 1905, Abadie, the originator of the plan of treating glaucoma by sympathectomy, reports three cases, of which the essentials are as follows: Case 1.—Woman, 55 years, subacute glaucoma, iridectomy each eye. June, 1894, V. slowly worse, in spite of continued pilocarpin. Four years later V. = fingers at a few centimeters' distance, a little better right than left. Right-sided sympathectomy June, 1898. V. R. E. improved to fingers at 2 to 3 meters, remaining so till last examination in September, 1905. L. E. V. = 0.

Case 2.—Man, 55 years, 1893, subacute glaucoma. L. E. miotics, sclerotomy, 1894. V. continually worse to complete blindness L. E. 1895, glaucoma R. E., sclerotomy, slow decrease of V. till October, 1900, when right sympathectomy was done. Since then V. has remained stationary at $\frac{1}{2}$ up to last examination, October, 1905.

Nasal field contracted, but patient earns his living. No miotics used after sympathectomy.

Case 3.—Man, 32 years, double chronic glaucoma, continuing after double iridectomy to complete blindness, L. E.; R. E. V. = 1/50; right sympathectomy May, 1905. V. improved to 1/40 and field wider; improvement persists without further miotics to last examination, September, 1905.

Abadie insists that sympathectomy is called for only when other things fail, but feels sure that in some of these desperate cases it does permanent good. In this we can not but agree, but the fact that the originator of the method, after more than ten years' experience, thinks it worth while to report 3 cases (one of them less than a year old) in which permanent benefit has resulted from the operation shows plainly how limited its field of usefulness must be and how careful we ought to be in building up the hopes of our patients on this basis.—GIFFORD, Omaha.

ETHYL CHLORID AND OTHER ANESTHETICS.

DR. BERNHARD KAYSER.

STUTTGART.*

[Reviewed by Frank E. Brawley, M.D., Chicago.]

The authors, who have recently expressed their views on the subject of general anesthesia with ethyl chlorid, speak highly of it. It is an anesthetic which has advantages essential to an ophthalmologist. It is relatively safe, of short duration, but complete and without unpleasant after-effects. Narcosis occurs in from 25 to 90 seconds, except in alcoholics, when it requires more time to reach complete anesthesia.

The period of induction is quiet, with only slight symptoms of excitement, cyanosis or other alarming symptoms. The heart action is not interfered with, except that there is a slowing of the pulse and diminished blood pressure. The patient wakes in two or three minutes and is at once completely conscious. Nausea is seldom observed. It is possible to at once give a second dose if necessary to complete the operative procedure, but if this is continued the nausea, headache and depression seem to increase so that ethyl chlorid does not answer the purpose of a long anesthesia. The dose is 2 to 3 c.c. for children and 6 to 7 c.c. for adults.

Ethyl chlorid may be administered in almost any way now employed to give other anesthetics, but the best method is to employ an inhaler with air-tight mask, rubber bag and receptacle for the anesthetic into which the full dose may at once be sprayed. The mouth is held open by a notched plug of rubber which does not interfere with the air-tight mask.

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* Klin. Monats. f. Augenheilkunde, September, 1905.

This form of anesthesia is particularly suitable in cases of unruly children with phlyctenular ulcers, etc., and cases of great photophobia and lid spasm; to relieve the pain in the treatment of severe blennorrhea of adults; for small operations, such as curettage of a chalazion, passing sounds in the ear duct when painful, cautery of corneal ulcers, discissions, enucleations, etc.

There occurred in one report of 16,000 administrations one death. Hird had another case where, after two minutes, the patient, a woman 67 years old, ceased breathing and convulsions and death ensued. The autopsy showed a carcinoma of the pharynx and fatty degeneration of the heart.

A case of Gifford's, a woman 50 years old, and addicted to alcohol, died toward the end of the narcosis without having received more than the usual dose. She began to wake up and the mask was replaced without adding any of the ethyl chlorid, when suddenly the breathing stopped and the pulse disappeared. Her organs were degenerated also, as found at the autopsy.

In addition to the above abstract of the work being done abroad, Large and Brown, in November *Laryngoscope*, experimented upon eighteen dogs with ethyl chlorid. The average time of the induction period was 110 seconds, minimum time 45 seconds, and maximum time 4 minutes.

They found it unwise to cause complete relaxation and abolition of reflexes, as it bordered on the danger period.

Gaudiani, experimenting upon many animals, has found neither toxic effects nor death.

Experiments upon rabbits carried out by Wood and Cerna showed increase in respiratory movements and a decrease in arterial pressure during ethyl chlorid narcosis, with an immediate return to normal as soon as the anesthetic was stopped. The heart rate first diminished in frequency and increased later in the experiment.

The conclusions of Large and Brown are as follows:

1. It is rapid in action and causes little struggling in comparison with ether.

2. It is practicable as a general anesthetic in short operations.

3. It is not necessary that reflexes be abolished before sensibility to pain is lost.

4. It is practicable as a preliminary to ether or chloroform.

5. It causes a lowering of blood pressure comparable to that of chloroform.

6. It seems first to stimulate and later to paralyze the respiratory center.

7. It has an effect upon the heart through the vagus center, tending to cause stoppage of the heart in the same manner as is seen in the early period of chloroform administration.

8. The experiment with the excised heart indicates that ethyl chlorid has a direct depressant effect upon the cardiac muscle, similar to chloroform.

9. It is not without danger when the administration is prolonged and is not practicable for prolonged anesthesia, at least by the present method of administration.

Dr. G. Rolland, dean of the Dental School and Hospital of Bordeaux, France, has experimented extensively with different methods of anesthesia and has finally produced a mixture called somnoforme, which contains: Chlorid of ethyl, 65 per cent.; chlorid of methyl, 35 per cent.; bromid of ethyl, 5 per cent.

This anesthetic has been used extensively throughout England during the past two years in about 500,000 cases. Dr. Rolland reports no alarming symptoms even in 28,000 cases personally observed.

There is no change in the complexion with somnoforme and it may be given for a prolonged anesthesia if necessary.

An anesthesia of two and one-half hours has been given here in Chicago with no bad effects.

The average dose is 2½ c.c., the average induction period is 30 seconds and the average duration 78 seconds. Following the anesthesia itself, there is a period of analgesia which permits of prolonging an operation when necessary.

Somnoforme requires a special inhaler, which may be used to give ether when that anesthetic is required for prolonged anesthesia.

CONJUNCTIVAL TUBERCULOSIS CURED BY MARMOREK'S ANTITUBERCULOSIS SERUM.

The uniformly good results which European oculists, led by von Hippel, are getting in the treatment of ocular tuberculosis with Koch's tuberculin (old style) almost betray one into wishing that we had more cases of the kind over here. But that tuberculin is not the only efficient weapon against the fell destroyer is indicated by a most interesting case reported by Schwartz (*Deutsche Med. Woch.* vol. 34, 1905). The case is unique both in clinical features and brilliancy of the result. The patient, a 16-year-old boy, was struck in the right eye with a piece of slag, and several days later the eye was cleaned by the handkerchief of the father, who had "lung trouble" (whether the father actually was tuberculous could not be learned). The lids developed numerous large granulations like an extreme form of trachoma, while the ocular conjunctiva was thickly studded with little protuberances, each of which soon developed into a yellowish infiltration. The conjunctiva between these was deep red and around the cornea was swollen so as to form a thick ridge. The cornea remained clear except for a few small infiltrations. Swollen glands occurred in the eyelid, in front of the ear, below the jaw and along the anterior border of the sternomastoid to the clavicle. No signs of tuberculosis elsewhere in the body. Tubercle bacilli were found in the excised conjunctiva with the microscope, and in pus from a gland below the ear by the inoculation of guinea-pigs.

On February 22, the conditions having been getting steadily worse, injections of Marmorek's serum were begun and continued every other day, 5 c.m. being used at first and later up to 10 c.m. at a dose. A marked improvement was apparent within a few days and progressed steadily till June, when the recovery was complete. In all 289 cm. of the serum was used. It was injected under the skin of the abdomen and caused no general disturbance except for a slight urticaria, which lasted ten days.

Schwartz also mentions a case of tuberculosis of the larynx and lung which he cured entirely by forty-two injections of the same serum. GIFFORD, Omaha.

REVIEWED BY CHARLES H. BEARD, M.D., CHICAGO.

A NEW OCULAR SYMPTOM OF BASEDOW'S DISEASE.—Teillais of Nancy, in a communication to the French Ophthalmic meeting of May, 1905, gave some observation on what he termed "A new ocular symptom of Basedow's disease," consisting in a bilateral pigmentation of the skin of both lids. He attributes the phenomenon to the alteration in the function of the thyroid body.

OPHTHALMIA NODOSA, by E. Valude, *Annales d' Oculistique,* July, 1905. Valude remarks that the alterations of the ocular tissues caused by the entrance into them of the hairs of the caterpillar are better known elsewhere, particularly in Germany, than in France. He could have said the same with regard to the United

States. In this article Valude reports a well-defined case wherein the history, the clinical features and the microscopic findings are all consistent. The patient, while dislodging from a tree a web of the pine, or firtree caterpillar, had some débris therefrom fall into his eye. The ophthalmia rapidly ensued. What gave the distinctive appearance were numerous grayish points scattered irregularly over the cornea and the conjunctiva. A number of these were slightly elevated, constituting true nodosities. Some of the epithelium was scraped from the affected parts and viewed with the microscope, when the points of the hairs could be plainly seen penetrating deep among the epithelial cells. One illustration is given showing a hair fast in the tissue, and how admirably it is adapted for such mischief. It is not only pointed, but thickly barbed, the barbs inclining toward the free extremity. A short historical sketch is given, stating, among other things, that it was Saemisch who gave the name ophthalmia nodosa. That Pagenstecher in 1883, because of the presence in the nodules of giant cells, called the affection pseudo-tuberculosis of the conjunctiva. That Becker in 1892 found the insect's hair in the center of the nodule. That Lawford in 1895 described a typical case with participation, in the inflammatory process, of the uvea and the hyaloid. That Krueger demonstrated by experiments on the rabbit that the hairs could easily traverse the cornea. Several authors had observed that the disease in question was caused by the pine-tree caterpillar. This species, whose entomologic name is *cnethocampa pityocampa*, is yellowish gray in color and is densely covered with hair, even its eggs being hairy. It may be that the dust from the insect's eggs, as well as the hairs, is capable of giving rise to troubles of the skin and of the mucosæ, and much of their irritating quality depends on a viscous material, containing an irritant principle analogous to formic acid. Valude thinks that the hairs alone, by their form, by their penetrating properties, and by their sojourn in the interstices of the corneal epithelium, were sufficient in his case to occasion the inflammatory reaction.

TWO CASES OF TRAUMATIC INFECTION OF THE OCULAR GLOBE BY THE BACILLUS PERFRINGENS (ANAEROBIC MICROBE). By J. CHAILLOUS.—Service of Dr. Morax. *Annales d' Oculistique*, August, 1905. In each case panophthalmitis followed the relatively slight wounding of the globe by a flying particle of metal, and in each the eye was enucleated. The points to which the author invites particular attention are the peculiar character of the inflammatory reaction, shown by the histologic examination, or the very special disposition of the infectious agents in the midst of the cellular elements, and the presence within the eye after a traumatism of a microbe hitherto observed only in lesions of an entirely different order—as, for example, in appendicitis, otitis, pulmonary gangrene, etc.,—and to here find this microbe in a state of purity, whereas in other places it has always been associated with other infectious bacteria. The hope is expressed that reports of such cases may help in the end toward the discovery of a remedy for these affections. In both instances the progress of the infection was very rapid, the anterior chamber being filled with pus, and all the other signs of a pronounced panophthalmitis evident at the end of forty-eight hours. The bacteriological examination in both proved the presence of the same agent—the bacillus perfringens. This was obtained by numerous smears, made from the matter about the wound, that in the anterior chamber and that in the vitreous; by cultures (in absolute purity) made in various media; and by experimental production of the infection in the eyes, and in the subcutaneous abdominal tissue of rabbits and guinea-pigs. The bacillus perfringens was first studied in France by Veillon and Zuber, and the results published in *Les Archives de Médicine Experimentale*, for November, 1898, under the title, "Researches Relative to Certain Microbes Strictly Anaërobic, and their rôle in Pathology." According to these and several other authors who have studied the bacillus in question, including Chaillous, its principal characteristics are here given: It is large, measuring 1 micron wide by 3 to 9 microns long. It occurs in pure culture or associated with other microbian forms, isolated or in short chains, or in clusters; it may be intra- or extra-cellular. Its extremities are clean and almost square. Examined in suspended drop it is immobile. It never presents a spore. It is colored readily by the fuschin of Ziehl, 1-10, or by gentian violet. It takes color finely by the Gram method. It appears surrounded by a capsule that would seem to be colorable under certain conditions, under others not. Its cultural peculiarities are given at some length. The anatomic study of the ocular lesions caused by the bacillus perfringens present two important characters, viz., a marked development of the (neo) vascular zone of the choroid, and the disposition of the microbian masses—i. e., they are removed from the vascular zone and lie in the midst of the inflammatory exudate. The condition of the inner tunics of the globe in these two cases is one of panophthalmitis, since, although the inflammatory exudate occupies mainly the uveal tract, it also infiltrates the retina—even breaks it in places—to penetrate into the vitreous body. The formation of the bacterial masses into compact rows, far from the vascular zone, resembles the arrangement of the colonies in the culture tubes, where these strict anaërobes will only develop in situations where oxygen is completely lacking. The paper is well illustrated in tint.

Anti-Glaucomatous Iridectomy and Massage of the Eye. By Wicherkiewicz, *Annales d' Oculistique,* August, 1905. In referring to the article by Dianoux on sclerotomy in glaucoma in the *Annales* for February, 1905, Wicherkiewicz states that he does not attach great importance to anterior sclerotomy as an operation of choice in glaucoma. According to his experience, only in simple glaucoma has it a certain value—he always having recourse to iridectomy as the operative measure for the inflammatory form. He does not insist so much on the coloboma being broad as that it should be peripheric. That which is also of the greatest importance is massage of the eye after the operation to prevent too rapid cicatrization. It is not denied, however, that equally good results from massage can be obtained, in simple glaucoma, after anterior sclerotomy, but it is only in connection with the use of myotics. The solution which Wicherkiewicz has used with satisfaction for several years he calls *pek,* as it is a mixture of pilocarpin, eserin and cocain (*kokoine*). More recently he has added to the formula a weak solution of adrenalin—though this is employed only in the forms of inflammatory glaucoma. In closing, a word is given as to the etiology of glaucoma. This is to the effect that while in common with most physicians he suspects arteriosclerosis in every case of primary glaucoma, yet one must not lose sight of the ulterior causes of the vascular affection. It is well known, he continues, that syphilis is most often the real cause of glaucoma (?), but this fact is often overlooked, and that it frequently occurs that anti-syphilitic treatment cures a glaucoma that has proved refractory to a model iridectomy.

The Eye Symptoms of General Paresis.—A. Joffroy (*Archives de Neurologie,* 1904), has examined the eye conditions in 227 paretics and found anomalies in 212. He considers this figure too small, as some of the cases were examined only once, and he thinks they are liable to appear later in the 15 in whom he failed to observe them. In 144 there was pupillary inequality, complete double mydriasis and extreme double myosis in 29 cases. Very frequently the pupillary orifice does not retain its normal form. In the last 125 examined this was observed 93 times in both pupils and 8 times in only one. He thinks this is, to some extent, a precursor or equivalent of Argyll-Robertson pupil. Of the two reflexes, luminous and accommodative, the former is by far most frequently affected. Its loss with the persistence of the accommodation constitutes the well-known Argyll-Robertson sign. The luminous reflex was found impaired or abolished 171 times in the 227 cases. It was lost on both sides in 103, lost on one side and weakened on the other 14 times, weakened on both sides 35 times, lost on one side and normal on the other 9 times, weakened on one side and normal on the other 10 times. The progressive weakness of this luminous reflex is generally the rule, and the Argyll-Robertson pupil once established is generally permanent, except perhaps during remissions. The accommodation reflex was found impaired or lost only 56 times. It was lost on both sides in 17, weakened on both sides in 13, lost on one side and weakened on the other in 5, lost on one side and normal in the other in 8. In only 2 cases did he find it impaired with normal luminous reflex, and it often remains normal even at a late stage of the disease. The external muscles of the eyes were affected in 38 cases. In 12 there was a simple ptosis, in 14 there were paralyses or pareses of the other muscles innervated by the third pair of nerves. In 5 there was paralysis of the fourth pair, nystagmus in 5, and in 2 spasmodic contraction of the orbicularis. In only 27 of the 227 were alterations of the fundus observed, papillary atrophy in 22, chorioretinitis (specific) in 2, old iridochoroiditis in 1, and traces of old optic neuritis in 2. The optic symptoms in paresis he considers of themselves insufficient for diagnosis. His figures are decidedly in contrast as regards fundus conditions with those reported by M. M. Kereval and Dangean (61 per cent. of cases) in the *Archives de Neurologie* in March, 1904.—(*Jour. A. M. A.*)

Reports of Societies.

MEETING OF THE BERLIN OPHTHALMOLOGICAL SOCIETY, DEC. 21, 1905.

President, Prof. von Michel, in the chair.

Professor Greeff shows a case of croupous conjunctivitis caused by giving calomel to a patient who was taking large doses of iodid of potassium. Although mentioned in the textbooks, this conjunctivitis meets with some skepticism, Greeff said. Dr. Seeligsohn does not believe that such cases are rare; he had a similar one which healed with boric acid ointment in a short time.

Dr. Guttmann showed a case of empyema of the frontal and ethmoid sinus.

Dr. Adam demonstrated a new apparatus for examining the amplitude of accommodation. This simple instrument is like a stereoscope of Holmes (without the glasses), on the rod of which there is a scale and also the age and normal amount of accommodation. The patient looks with one eye through a short tube, in which glasses may be stuck, at small type. The apparatus seems to be a very convenient appliance and is made by Sydow, Berlin. It can also be used to find out the far point in myopia.

Dr. Schulz reported on his experiments on rabbits, into the iris of which he introduced the virus of syphilis. He gave a very detailed account of the history of cytorrhyctes luis, a protozoon of the flagellate type, which Dr. Siegel claims to be the originator of syphilis.

In the discussion there was a lively dispute between the adherents of the cytorrhyctes and the spirochætæ theory, the discoverers of which were present and helped fight. I omit details because there was not a sentence said which was not disputed afterward.

Dr. E. H. Oppenheimer, Berlin.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, Dec. 14, 1905.

Charles J. Oldham, F.R.C.S., Vice-President, in the Chair.

LIGHT SENSE IN STRABISMUS.

Dr. D. Matheson Mackay read this paper. After pointing out that up till now no observations had been made and published on the condition of the light sense in the amblyopia of strabismus, he described his examination of 1,245 strabismic or amblyopic patients, undertaken in order to discover if there were any defect in the light minimum, or the light difference, of the affected eye which could account for the trabismus or the amblyopia. The photometer employed was a new one, described as having several advantages over those previously used. The cases were arranged in six groups: Convergent strabismus with amblyopia (66 cases); convergent strabismus without amblyopia (30 cases); alternate convergent strabismus with double amblyopia (2 cases); divergent strabismus with amblyopia (9 cases); divergent strabismus without amblyopia (4 cases), and amblyopia without strabismus (14 cases).

In all these cases both the light minimum and the light difference were estimated separately, and the results in the more important groups showed that a large majority of the affected eyes had normal light sense (77 to 90 per cent. as to the light minimum and 75 to 80 per cent. as to the light difference). The lesser groups had the same tendency, but on account of the small number of cases their results were not insisted upon.

Dr. Mackay concluded that one could only deduce from these observations that the condition of the light sense is not responsible for the squint or for the amblyopia.

Mr. Stephen Mayou read a paper on cyclops. The specimens, four in number, were obtained at the London Hospital through the kindness of Dr. Keith. Case 1 was that of cyclops in a dog, and showed single, centrally-placed eye, having only one elongated lens and a single retina. The optic nerve consisted of two layers of cells. Case 2 was a human cyclops, having two lenses, corneæ and retinæ, with a single optic nerve. This specimen was peculiar in having no proboscis or olfactory nerve. Case 3 was a human cyclops with extreme microphthalmos. It has two lenses and corneæ, and there was a partial inclusion of the proboscis between the anterior parts of the globes. The posterior halves of the ventricles were converted into a large cyst (local hydrocephalus). Case 4 was a twin cyclops, with complete union of heads and fusion between the eyes of either fetus; the fusion was so perfect that no differentiation could be made out except a small coloboma of the nerve sheath. Full anatomical details of the results of the maldevelopment of the first cerebral vesicle, together with microscopic anatomy of the eyes, were given.

RETRO-OCULAR TUMOR.

Mr. Richardson Cross gave a description of seven cases he had operated upon for retro-ocular tumor, five of them done by Krönlein's method. He described the various conditions in which an exploratory operation such as this would be of the greatest benefit: it assisted the diagnosis and left the patient no worse for having done it. The operation was briefly explained. Case 1 was a fibro-adenoma of the lacrimal gland, but it left behind ptosis and partial paralysis of the ocular muscles with inversion of the eyeball, an unsatisfactory result. Case 2 was a hydatid cyst removed from the optic nerve. This was removed with good result. Case 3 was a fibro-fatty tumor of the eyeball, which passed backward into the orbit. It was removed successfully. Case 4 was a sarcoma of the upper lid, which caused proptosis; the eyeball had to be removed with the tumor, as it happened, although there seemed a reasonable probability that the eye might be saved before the operation was undertaken; the patient made a good recovery. Case 5 was a similar growth under the upper lid, in which the orbit was eviscerated without any attempt having been made to save the eye. Case 6 was a large growth at the inner and lower part of the orbit, which was removed by an incision along the inner and lower walls of the orbit. Case 7 was one of severe proptosis, with retro-ocular growth treated by Krönlein's method. A sarcomatous mass had destroyed the upper wall of the orbit and was in contact with the brain. The antrum was also involved. The wound healed up and left good vision and good use of the eyeball; even the internal rectus was not damaged. Mr. Cross showed another case in which he considered an exploratory operation desirable. He was greatly impressed with the utility of the operation, and he urged that it should be done in any case in which there was doubt as to the nature of the condition of the orbit.

C. Devereaux Marshall.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of Dec. 16, 1905.

Dr. James A. Patterson of Colorado Springs Presiding.

CONGENITAL DISLOCATION OF BOTH LENSES.

Dr. E. R. Neeper of Colorado Springs reported a case of congenital dislocation of both lenses in a healthy male student, aged 21 years, the right being dislocated downward and outward and cloudy; the left downward and clear. R. V. 3/200 c. + 5.00 cyl.

ax. 30° = slightly improved. L. V. 12/200 C. — 12 sph. ⌢ — 2 cyl. ax. 180° = 20/60 mostly. For near work, +2 sph. added. Excepting right supraorbital neuralgia and epiphora, which accompany acute coryza, present during the morning hours, his eyes permit much close application with no other annoyance than lowered vision.

Discussion.—Drs. Marbourg and Coover had seen this case about fifteen years ago, when both lenses were clear, and — 3 sph. in each eye gave the best vision.

Dr. Jackson said the fundus was apparently normal, and recalled a case of dislocated lens in the anterior chamber in which the eye had been lost.

Dr. Bane spoke of a case of partial dislocation downward, in which he had seen the retinal vessels above and also through the lens.

FLOATING BODY IN ANTERIOR CHAMBER.

In this case, aged 28, reported by Dr. Neeper, the general health was unusually good. An irregular disc-shaped body, about 1 mm. in its greatest diameter, dark, probably pigmented and of greater specific gravity than the aqueous, had floated in the anterior chamber for the past year, undergoing no change in that time. There had been no trauma or inflammatory condition.

Discussion.—It was the opinion of the society that this body consisted of organized pigment.

CONICAL CORNEA.

A girl of 18 years was reported by Dr. Neeper to have had a history of good health, excepting headaches, indigestion and nausea following the use of rich or cold foods. The right eye showed conical cornea. It had been struck by a snowball six years previous and vision had rapidly diminished in the six months prior to August, 1904, at which time an examination of the refraction under homatropin revealed: R. V. 8/200 C. — 0.50 sph. ⌢ + 7 cyl. ax. 180° = 20/40 + L. V. 20/20 + C. + 0.50 cyl. ax. 15° = 20/15 +.

Until recently the above correction had been worn, but at present the cylinder in the right eye is only one-half the above strength. For several months the patient had worn a cap, always at night and much of the daytime, with a strap under the chin and one over the eyes, arranged to hold pads on the eyes with slight pressure. All headache had disappeared, the corneal astigmatism had apparently been reduced one-half, and progressive increase of conical cornea and loss of vision had been checked.

Dr. Jackson considered that the development of conical cornea had been arrested in this, as in some other cases of high degree.

Dr. Coover thought rest and the use of the correcting lenses had been the chief factor in the improvement.

Dr. Patterson advised continuation of the pressure.

KERATO GLOBUS.

Dr. Neeper reported the case of a man, aged 26, who had come to Colorado in May, 1905, for asthma and hay fever, gaining twenty-one pounds here in seven months. Fourteen years previously he had suffered from "sore eyes," and no further trouble had developed until eight years ago, when he had noticed a halo on looking with left eye only. This had been followed by gradually reduced vision. Four years ago first noticed halo with right eye. No pain at any time. Oct. 7, 1905, R. V. = fingers at three feet; L. V. = light perception. The anterior chambers were very deep, the corneæ round, full, somewhat hazy and slightly anesthetic, the pupils about 3 mm. in diameter, slightly irregular and reacting poorly, tension raised and fundus reflex only visible. Pilocarpin and eserin in weak solution had improved vision slightly in the past two months in which it had been used.

Discussion.—Dr. Jackson believed the cornea was abnormal in this case in childhood, growing worse later.

GLAUCOMA.

Miss K., aged 53, had been treated and was reported by Drs. Strader and Neeper. She had suffered from severe pain in and above the left eye for one and one-half years prior to October, 1904, when she had developed glaucoma. Dr. Strader of Cheyenne then did a posterior sclerotomy, followed by iridectomy. Cataract of this eye had followed, but light perception and absence of glaucomatous symptoms had remained. In January, 1905, an attack of glaucoma had occurred in the right, with recurrences since. Much relief had been caused at times by spraying the hypertrophied turbinates with cocain and adrenalin solutions, and again myotics only had given relief. Dr. Strader had controlled tension and relieved pain in the right eye in this case by the use of 130 grains of salicylate of soda in twenty-four hours.

Discussion.—Drs. Coover and Hess advised nasal surgery.

Dr. Marbourg instanced a case of frontal pain on studying, caused by abscess of the frontal sinus, which had been relieved by drainage of the abscess.

ANTERIOR STAPHYLOMA.

Dr. A. C. H. Friedmann of Colorado Springs showed a child, 15 months old, who had suffered from ophthalmia neonatorum. The attending physician and the nurse had declared the trouble to be a "cold" and that the services of an oculist were unnecessary. After two weeks had elapsed an oculist was consulted, but the right eye perforated, the lens escaping and each eye slowly developed large staphyloma of the cornea. There now remains just enough clear corneal space on the left eye only to perform an iridectomy. The right eye is hopeless and vision is apparently that of light perception.

Discussion.—Dr. Jackson advised waiting a year before doing an iridectomy.

FACIES LEONINA.

A girl, aged 13 years, whose father was infected with syphilis two years before his marriage, was presented by Dr. Friedmann. The child showed most distinctly facies leonina. Anterior synechiæ existed in each eye almost at identical situations, alternating strabismus was present and one eye was amblyopic.

RETINITIS.

Dr. Patterson presented the following cases: College student, aged 23 years, came Dec. 1, 1905, complaining of drowsiness and smarting in eyes; never had headache; is wearing for study + 1.00 sph. for each eye; vision equals 5/5 in each eye. Ophthalmoscopically the right optic nerve was red-gray, cloudy, and the entire retina was bright brick-red, with exudations around the fovea resembling Bright's retinitis. The left showed the same disease to a markedly less degree, with any retinal exudative tendency absent. Under a mydriatic correction was found to be O.D.C. + 0.75 sph. ⊂ + 0.37 D. cyl. axis 165° V. = 5/5. O.S.C. + 0.75 D. sph. ⊂ + 0.50 D. cyl. axis 60° V. 5/5.

History of syphilis was unobtainable. Urine, sp. gr. 1028. Excepting increase of urates and oxylates, it was negative. To-night the nerve seems paler than at first, the retina unchanged. The patient is a masturbator. The etiology to me is obscure and the case is presented for suggestions. He is taking iodin.

Discussion.—Dr. Friedmann enunciated the dictum of Schweigger: "When the subjective symptoms are not in accord with the objective, look for masturbation."

VERNAL CONJUNCTIVITIS.

Miss C., aged 16, who had suffered from itching and burning of eyes, with some lacrimation and sharp stabbing pains, was reported by Dr. Patterson. She had been subject to these attacks since childhood. She had lived part of the time in Georgia, U. S., and later in Brazil, in Colorado for the past year. The right eye had always been the worst of the two, and only occasionally had Dr. Patterson found any congestion of eyes, and then the hyperemia was most noticeable upon bulbar conjunctivæ below cornea. The lids were smooth, nor had there been anything characteristic of vernal conjunctivitis excepting the fact that all the symptoms were worse from heat and distinctly improved by cold air. She had suffered most on rising in the morning and again from close use of eyes.

LOSS OF SEGMENT OF OUTER LAYERS OF IRIS.

The case of a woman, aged 30, clerk, was reported by Dr. Patterson. She had an attack of iritis and Descemetitis, beginning April 6, 1905. There was no apparent reason for the attack, excepting a possibly lithemic temperament. The disease was sharp and lingering, though very severe pain was never a paramount symptom. On the subsidence of active trouble the vision was reduced from exudations and there was a small synechia at the upper outer iris quadrant, which was present at the start and continued to persist regardless of efforts to loosen it. The eye had made a complete recovery with V. 5/4, with correction of + 0.50 ⌓ + 0.50 cyl. ax. 90°, a few dots remaining on Descemet's membrane far down in anterior chamber. The case was presented to show an area about 1.5 mm. wide upon the iris, running up and out from the pupil to the periphery (coincident with a synechia beneath it), in which loss of the outer layers of the iris had appeared as a dark steel-blue tint in contrast to a yellowish gray iris.

THE KNIFE-NEEDLE OPERATION FOR SECONDARY CATARACT.

A paper on this subject was read by Dr. Edward Jackson. He urged that in operating for secondary capsular cataract the knife-needle should always be entered through the limbus, because this gave safety from infection of the wound, and a larger leverage, permitting freer discission of the membrane with less difficulty and less twisting of the instrument than when it was entered through a puncture in the clear cornea. He referred to the large number of eyes that had been lost by needle operations in former years, and expressed the belief that the operation could be made as safe as any operation in surgery. The operation should be done by oblique illumination and with the binocular magnifier. Otherwise it might be impossible for the surgeon to see just what he was doing. The membrane should be cut, not torn. Therefore the knife-needle should be sharp, and the force exerted exactly in the direction of the cutting edge, with a slight sawing movement. To secure permanent result two incisions must be made, joining each other at a considerable angle. Care must be taken not to leave any bridge of membrane separating them. It was of little importance whether the angle was placed above or below, or to one side, since the membrane had almost the same specific gravity as the aqueous humor, and would float about as well in one direction as another. The incision should, if possible, divide the membrane at the points of the principal iritic adhesions.

Discussion.—Dr. Coover had always feared the secondary operation, but had attained better success when entering knife at the limbus.

Drs. Bane, Walker and Libby had personally seen no bad results from entering near center.

Adjourned. GEORGE F. LIBBY, Secretary.

SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, Dec. 19, 1905, Dr. G. E. de Schweinitz, chairman, presiding.

Dr. William Campbell Posey presented a second case of keratitis disciformis. The patient, a stonemason, aged 34 years, had been struck in the right eye a month previously. Moderate inflammatory symptoms followed. A disc-like opacity, with small prolongation to the temporal side, persisted. This opacity was grayish white, quite superficial, and was composed apparently of a series of small dried-up vesicles. The parenchyma of the cornea was clear. The edges of the disc upon the cornea were sharply outlined, and with the center were denser than the remaining portion. The eye was free from inflammation. Massage with an ointment of bichlorid of mercury, in strengths varying from 1-5000 to 1-200, made no effect upon the opacity.

The writer pointed out that this case, in common with the case presented by him before the section in January last, showed all the characteristics of keratitis disciformis as noted by Fuchs, with the exception of the superficial position of the opacities. He thought, however, that the cases, when they were observed by him, had arrived at the final stage of the process and considered it likely that during the acute stages the parenchyma of the cornea had been affected. He referred to a recent paper by Schirmer, which showed the connection between keratitis disciformis and the affection of the cornea which arose after infection of that membrane by vaccine virus. Recent observations by Meller upon the pathology of the disease were also dwelt upon. This author had found in an enucleated eye, the seat of keratitis disciformis, an infiltrated area in the center of the cornea, which extended anteriorly and posteriorly to Bowman's and Descemet's membranes respectively. The epithelium was infiltrated with free round cells and was lifted up in places, being reduced to several layers only. Bowman's membrane was normal, but Descemet's membrane was thrown into numerous folds and there was a thick exudation of fibrin adherent to it posteriorly, which took the form of a disc.

Showing the connection between keratitis disciformis and corneal erosions, of which mention had already been made by Peters, the writer presented a case of relapsing keratitis, in which the opacity, though hour-glass in form, presented many characteristics in common with the disc of disciform keratitis.

Drs. G. E. de Schweinitz and E. A. Shumway reported a case of cyst of the iris. In December, 1904, the patient, a girl aged 5 years, was struck on the left cornea with a piece of corset string. The inflammation subsided, and when the child was examined in the University Hospital, ten months later, the right eye was normal. Just above the horizontal meridian at its inner end in the left eye there was a small corneal scar, to the posterior portion of which the iris was attached by a delicate, slender synechia. Within the pupil space the remnants of some lens tissue were visible, together with a slightly opaque lens-capsule. The pupil was nearly round and freely movable. The fundus was normal.

The child was not again seen until Dec. 3, 1905, when she returned because of some pain in the right eye, occasioned by studying, and a change in the appearance of the left eye. After correcting the refractive error, vision became normal and the discomfort ceased, but the following changes were noted in the left eye: Exactly replacing the synechia previously described, there is a cyst, which extends from the surface of the iris to the posterior part of the cornea. Its upper two-thirds is formed of a delicate, translucent wall, while its lower third is pigmented and composed of a collar of iris tissue, slightly fringed on its edge. The apparent size of the cyst is that of a small elongated shot. There is no tenderness and ciliary congestion, the eye in other respects exhibiting no changes other than those already noted.

The authors referred to the classification of iris cysts. As will be remembered, Hulke, nearly forty years ago, gathered iris cysts in four groups: 1. Delicate membranous cysts with an epithelial lining and clear, limpid contents. 2. Thick-walled cysts, with opaque, thicker contents. 3. Solid cystic collections of epithelium, wens or dermoid cysts. 4. Cysts formed by deliquescence, or myxomata. Richard Greeff considers this old classification to be a suitable one, provided Classes 1 and 2 are described as "true cysts" and Classes 3 and 4 as "false cysts."

Ginsberg is satisfied with the following: 1, lymph-retention cysts; and, 2, implantation cysts, which include traumatic, serous cysts and atheromatous cysts.

J. Herbert Parsons suggests this classification: 1, implantation cysts, including pearl and atheromatous cysts; 2, retention cysts; 3, congenital cysts; 4, cysts of the retinal epithelium; and, 5, parasitic cysts.

Referring especially to their case, it was thought that it probably belonged to the implantation cysts, of that variety often described as a traumatic serous cyst, and which arises because corneo-conjunctival epithelium gains entrance through a corneal wound, proliferates and develops a cyst. The epithelium of the cyst may be connected with the corneal epithelium and invaginated along the line of the original perforating wound, or may be derived from a particle of corneal epithelium which has been implanted.

Based upon microscopic evidence, Lagrange suggests that instead of describing serous cysts as spontaneous and traumatic they should be divided into epiblastic and mesoblastic cysts. Thus an epiblastic cyst could arise from the traumatic inclusion of a particle of epithelium in the anterior chamber, or from a congenital ectodermic inclusion. But a mesoblastic cyst could arise from a traumatism, an anterior synechia, an inflammation or from an effusion of blood in the iris. It would be characterized by an *endothelial*, not epithelial, lining of its walls, the structure of which would be composed exclusively of mesoblastic tissue.

Streiff believes that true serous cysts on the anterior surface of the iris arise beneath the "cryptal layer (Kryptenblatt), either as *endothelial* cysts by shutting off the lymph spaces, or after traumatic separation of a part of Fuchs' iris cleft (retention cysts, cleavage cysts), or as *epithelial* cysts by congenital or traumatic misplacement of epithelium into this cleft (congenital epithelial implantation and invagination cysts).

Finally, from the standpoint of their position these cysts may be divided, according to J. Meller, into iris cysts proper, which are situated entirely within the iris tissue; iris-chamber cysts, which are situated partly in the iris and partly in the anterior chamber, and wall-chamber cysts, which are so situated that the iris forms only part of their boundary wall.

Discussion.—Dr. Harlan referred to a case of cyst of the iris he had observed which was found to be due to the implantation of a cilium. Dr. S. D. Risley exhibited a drawing of an iris cyst that he had previously reported.

CORNEAL CHANGES.

Dr. G. E. de Schweinitz demonstrated a patient with old corneal changes following injury and secondary glaucoma. The right cornea showed the following lesions, which had followed a blow upon the eye with a piece of rope three years prior to his examination. The upper third of the cornea was delicately frosted in its superficial layers. Succeeding this there was a crescent of old infiltration passing from one margin of the cornea to the other, about 2 mm. in width and composed of a series of oval and circular opacities shaped somewhat like the links of a chain, the center of each exhibiting a small clear space. Below this arc there was a less delicate haze in the cornea than that which the upper third exhibited, through which could be seen a fine arrangement of lines, forming a series of acute angles, the so-called geometrical figure. The iris was slightly tremulous, the pupil widely dilated and the tension elevated.

Vision was reduced to light perception, and this was present only on the temporal side of the field. The haze in the cornea was evidently explained by the result of the injury, and the geometrical lines by infiltration, either in the deeper layers of the cornea or in Descemet's membrane. It was thought that the crescent of chain-shaped infiltration might have represented the ultimate results of a bullous keratitis of unusual distribution, as there was a history of frequent attacks of redness and foreign body sensation in this eye during the past three years.

Dr. de Schweinitz discussed the pathology of vesicle formation after injury and the various theories which have attributed this condition to local degeneration of the cells on account of continued irritation of the epithelium; to neuritis of the corneal nerves and to change in the form of the basal corneal epithelial cells. He also discussed the theories of the increased fluid in the cornea in edema due to glaucoma, referring to the views of various authors that it may be explained by a pure stasis of lymph circulation, by the passage of fluid from the anterior chamber into the cornea, owing to permeability of the endothelial cells under pathologic conditions, and to the possibility that fluid may also come from the capillary network of the corneal limbus.

Discussion.—Dr. Harlan referred to an article by Villard, in a recent number of the *Annales d'Oculistique*, on traumatic glaucoma, in which that author states that the affection is rather rare. He has been able to find only twenty-four cases recorded. The pathogeny is not determined. Some authors think that the increased tension is of nervous origin; others, basing their opinion on the albumin theory, suppose that the aqueous humor is charged with a large proportion of albumin which transudes through the walls of the vessels of the ciliary body paralyzed by the traumatism and obstructs excretion. Others maintain that the angle of filtration is obstructed by swelling of the ciliary body. In certain cases intraocular hemorrhage or subluxation of the lens may be an important factor.

MONOCULAR BLINDNESS.

Dr. D. Forest Harbridge (by invitation) reported a case of monocular blindness occasioned by visible spasm of the central artery of the retina. The patient, a male, aged 49 years, complained of frequent attacks of absolute blindness in the left eye, lasting from one to five minutes, and at first occurring at two-hour intervals, later becoming more frequent. The attacks began by slight supraorbital pains, shortly followed by loss of vision, the nasal field always disappearing first. The attacks were usually started by patient assuming a bending posture and were followed by supraorbital pain and ocular tenderness. Vision of O. D. = 6/9; O. S., 6/6. Ophthalmoscopic examination, practically normal; no evidence of arteriosclerosis. Attacks were frequently observed and began with dilatations of the pupil. The inferior temporal artery gradually became lessened in caliber until completely collapsed; followed by the inferior nasal and superior arteries. A similar condition followed in the veins, the nerve became quite pallid and the retina slightly hazy. After about four minutes' duration the normal fundus condition gradually returned, normal visual acuity appearing a little later.

The patient had been subject to vertigo and attacks of migraine, had been twice injured, and there was complete loss of sexual power; probable specific history. Medical examination was practically negative; the neurologic examination was suggestive of beginning tabes.

Discussion.—Dr. Posey recalled some cases of transient monocular blindness reported by him some time before, but he had not seen any of them during an attack. Since the published report two of the patients had died from vascular changes. He thought the prognosis should be guarded. If the patient did not lose vision because of the spasm it was likely that a thrombus would be formed later. He advised iridectomy if the attacks could not be controlled by other means. Dr. Zentmayer had seen the patient during two attacks. In the second some retinal haze was observed in the lower portion. He referred to the relation of the spasm to permanent obstruction of the central retinal artery and also to the attacks of migraine, and believed that if permanent blindness should result it would be evidence in favor of thrombosis rather than embolism. He also called attention to the fact that although iridectomy had been performed in Wagenman's case, the patient became blind.

Dr. de Schweinitz said that he had had the opportunity of examining this patient during an attack of blindness and had witnessed the phenomena which had been described by the reporter. This retinal circulation resembled somewhat, at the height of the attack, the thread-like vessels seen in advanced cases of pigmentary degeneration of the retina, or those that could be produced by various toxic agents which cause an intense ischæmia, notably quinin in large doses, as he himself had frequently seen in experimental work. He had been unable during the attack, which lasted five minutes, to detect any edema of the retina, but had watched the refillings of the vessels and the unusual enlargement first of the inferior veins. During this attack there were no notable changes in the opposite eye. Dr. de Schweinitz also referred to a case of so-called embolism of the left central artery of the retina, in which he had had the opportunity of making ophthalmoscopic examinations twenty minutes after the obstruction occurred. These phenomena were evident: The color of the disc was visible through a semi-transparent delicate haze, which covered its surface and spread out into the retina in a circular area of about a disc's diameter. Here the color of the haze was more decidedly gray. The macular region was invested with a similar but more milky haze, and in the center there was a typical cherry spot. These two banks of fog were separated by an area of unaffected retina. The entire arterial tree had very much dwindled, the vessels being represented by faint threads on which no light reflex could be traced. The shrinking of the arteries perceptibly increased during the ophthalmoscopic examination. In contrast, the veins seemed larger, although, as compared with the other side, they were much smaller than normal. In the lower temporal vein a moderately rapid circulation was visible, characterized by small cylinders of blood, separated by clear spaces which moved toward the disc, presenting very much the appearance that would be produced by mixing air and colored water in a tube. This patient had marked mitral regurgitation, with a strong systolic murmur and a moderate degree of cardiac hypertrophy.

In Dr. Harbridge's case there was no visible circulation in the veins during the attack. What the exact pathologic condition was under the circumstances detailed is, to a certain extent, a matter of conjecture, but certainly it would seem that the phenomena are best explained by assuming the presence of a spasmodic contraction of the walls of the artery; indeed, we know from the observations of Schnabel and Sachs that even in partial real obstruction, be it embolism or thrombosis, two factors interrupt the circulation, one being the obstruction itself and the other the spasmodic contraction of the walls of the artery. Therefore it is probable that at some time or other in this patient's career, as has happened in other similar reported cases, this obstruction will become permanent by an increase of the doubtless existing endarterial changes.

RELATION OF CONVERGENCE TO ACCOMMODATION.

Dr. Howard F. Hansell read this paper. It is admitted that about 75 per cent. of the cases of functional internal strabismus are due to uncorrected hyperopia, and in a proportion of these cases, if seen early in life, the strabismus may be cured by the rest to the ciliary muscle obtained by wearing proper correction for the refractive error. A small percentage of the remaining 25 per cent. may be due respectively to structural defects of the muscles, to abnormalities of the orbit, to disease of one eye and other causes. Dr. Hansell called attention to a possible cause that has been practically overlooked, that may be accepted as explanatory in a few cases, namely, the primary innervation of the muscles of convergence independently of the state of refraction. He reported three cases in which the strabismus bore no evident relation to the refraction as a causative factor. In one, indeed, the stimulation to convergence in the interest of binocular single vision always induced myopia of 3 D. This case demonstrated the condition the reverse of that usually in evidence, the dependence of the refraction on the convergence rather than the convergence on the refraction. He emphasized the point that in investigating the etiology of strabismus, particularly in adult subjects, it is well to remember that the fault may lie primarily in the muscles of convergence.

Dr. William M. Sweet exhibited a boy, aged 12 years, with a congenital tubular growth extending from the lower outer quadrant of the optic nerve directly forward into the vitreous. The mass was of a glistening white color, with somewhat broadened base, and numerous tent-like processes which extended to the upper and outer portion of the disc and the immediately adjacent retina. The apex was slightly rounded, and best seen with a + 7.D lens. At the nasal side of the nerve margin large patches of chorioidal pigment were present. The lens was partially dislocated. No abnormality was found in the left eye. The case was believed to belong to the class of anomalies of the hyaloid, the dilated artery having undergone connective-tissue changes. Dr. Sweet also showed a man, aged 43 years, with a gumma of the lower lid, which started as a small pimple on the skin, near center of lid, and spread until a furrow, 6 mm. wide and 5 mm. deep, with overhanging edges, extended the length of the lid, and about 5 mm. from the margin. A broken-down gumma also existed over the sternum. Under mixed treatment the ulcer of the lid had decreased in ten days more than one-half in size. C. A. Veasey, M.D., Clerk of Section.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

The regular monthly meeting was held on November 19 in the rooms of the San Francisco Polyclinic, the president, Dr. K. Pischel, in the chair.

The scientific program follows:

Dr. George H. Powers presented a case where a rusty rivet entered the eye of patient. He considered the foreign body to be lodged in the sclera and thought that the eye need not be removed, as the trouble was not involving the ciliary body. When the patient came to him there was marked chemosis, traumatic cataract with no light reflex. Patient could barely count fingers and suffered no pain. The doctor presented an admirable skiagraph showing the foreign substance in position.

Dr. Barkan said that the foreign body should be located and an attempt made to remove the same. Failing in this, the eye must come out.

Dr. Card concurred in this view.

Dr. Pischel had the same suggestion.

Dr. W. F. Southard presented a case of burning of the conjunctiva and cornea with lime. The patient works in a beet-sugar refinery and accidentally got some of the mixture of molasses and lime into his right eye. There was extensive inflammation of the palpebral conjunctiva, but no symblepharon. The cornea had a peculiar whitish appearance and the iris and pupil were invisible. No pain. These burns resemble those of Babbitt metal and the doctor asked whether the burn extended below the epithelium, as upon this point the prognosis depended. The treatment was sterilized vaselin, to prevent adhesions, and atropin.

Dr. Southard also presented a case of microphthalmos, with a congenital cataract. The cataract is usually found in these cases and is not developed. The eye would not have useful vision even were the cataract removed.

Dr. Card suggested needling of same.

Dr. Southard thought this might be done but for cosmetic reasons only.

Dr. Powers showed a little boy who had been operated on for convergent strabismus by the Panas method. The operation was performed here at St. Mary's Hospital by Dr. D. B. St. John Roosa of New York. Sight was nearly normal in both eyes, patient accepting under atropin a plus 0.75 sphere and getting twenty-twentieth vision. There was possibly 2 degrees of convergence at present.

Dr. Powers had read much about this operation and, as Panas, a reliable authority, had performed it a number of times on the cadaver before trying it on the living, he felt that his views were correct. Dr. Roosa had performed the operation a number of times in New York with almost uniform success. The procedure is based upon the assumption that in strabismus both eyes are involved and the contracted muscles are in a state of clonic spasm. Therefore, they are to be stretched before severed. This is done usually under general anesthesia, both eyes being operated on at the same sitting. The eye is grasped with forceps and slowly turned out or inward, as the case may be, and held in that position for a few minutes. This stretches the offending muscle and overcomes the contraction. It is now cut at its insertion and a purse-string suture closes the conjunctiva. The same is done to the other eye and both are bandaged. A few days later, if divergence exists, nothing is done; if convergence, the accommodation is paralyzed with atropin, and when the redness has disappeared the proper correcting lenses are prescribed.

Dr. Barkan thought that one should be loath to operate both eyes at the same sitting. He said that he would like to see how long the correction would last, and mentioned some cases where he had found it necessary at the expiration of some years to reoperate.

Dr. F. B. Eaton considered the dynamic convergence as about 5 degrees and did not admire the operation. He considers a muscle weakened by this stretching process.

Dr. W. S. Franklin referred to Professor Schweigger's method of forcibly turning the eye outward after the muscle had been cut. The only difference between the two operations was this fact, i. e., the turning or stretching before or after the muscle was severed. Schweigger had special forceps for this purpose and he did it with the hope of having the cut end of the muscle attach itself to the eyeball further back than it ordinarily would.

Dr. Powers said that he would present the case again at the expiration of six months, and thought that that would be ample time to judge the ultimate result.

Dr. R. D. Cohn presented a case of unilateral exophthalmos. The patient was a female, 19 years old, with no history bearing upon the present condition. Right eye has protruded ten years, and patient came to the clinic for another trouble. The vision was good, 6/18 to 6/12, no fundus changes. *X*-rays showed no appreciable shadow. The exophthalmos is not increasing and the patient has luxated the bulb a number of times, this latter condition disturbing her mentally. He has given potassium (iodin in large doses, 5.0 to 6.0 gm. daily) with no effect upon the protuberance. He considers this a case of benign neoplasm within the orbit.

Dr. Barkan thought this a benign tumor, saying that it might be fatty or an angioma. He felt that the doctor was justified in exploring the orbit by Krönlein's method.

Dr. Powers mentioned a case wherein he had replaced a luxated bulb, the patient being the pet dog of one of his friends. He asked whether, in this case, the sinuses of the nose had been examined.

Dr. Franklin described a case he had witnessed at Fuch's clinic where the orbital tumor proved to be a serous cyst which was opened during the course of the operation, leaving practically no trace of the walls.

Dr. A. Barkan showed a case of one-sided "Morbus Basedowii." These occur in rare instances. It had developed quickly, some tachycardia was present, but Stellwag's and Graefe's signs were missing. No fundus changes, no bruit.

When the eye is palpated and pushed back into the orbit the patient notices that the next day she has a hemorrhage from the nose.

Dr. Franklin thought that the right eye was only relatively exophthalmic. He considered the left eye as also affected and somewhat prominent, but, being so to a lesser degree than the right, it gave the latter the appearance of single prominence.

Dr. E. F. Card described a case of hysterical aphonia. The patient was 12 years of age, healthy, but rather phlegmatic in all her actions. Weight 150 pounds. She recovered her voice with the usual treatment (strong faradic current) and was permanently cured.

Dr. Welty minutely described the treatment, insisting upon the fact that these patients must be made to talk at the first visit. Drs. Cohn, Southard and Franklin described similar cases.

W. Scott Franklin, Secretary.

Notes and News.

Chicago Ophthalmological and Otological Society, Jan. 9, 1906.—At the annual meeting held Jan. 9, 1906, Dr. J. E. Colburn presiding, the following officers were elected for the ensuing year: Dr. George Fiske, President; Dr. Thomas A. Woodruff, Vice-President; Dr. W. H. Wilder, Councilor to the Chicago Medical Society; Dr. J. E. Colburn, Councilor of the Ophthalmological and Otological Society; Dr. E. V. L. Brown, Secretary.

Mr. Lister has resigned from the staff of Royal London Ophthalmic Hospital (Moorfield's). Mr. Claude Worth has been appointed to fill the vacancy.

Privatdozent Dr. Heine, Oberarzt of the University Eye Clinic in Breslau, has received the title of Professor.

In order to better handle diseases of the eye, ear, nose and throat, the regents of the Michigan University Hospital have decided to erect a new building at a cost not to exceed $14,000. They have also refused to allow the erection of a detention house for contagious diseases.

For the encouragement of scientific research the Königliche Gesellschaft der Wissenschaften awarded the following prizes for the year 1904: 600 M. to Privatdozent für physiologie, Prof. Dr. Heinrich Bortuttan in Göttingen for investigation of the pathologic changes of function of nerve fibers. 800 M. to Prof. Dr. Waldemar Voigt of Göttingen for his investigation of the effect of an electric field on the visual apparatus. 400 M. to Dr. Ernst Hertel, Professor of Ophthalmology in Jena, for studies on the physiologic effects of the chemical light rays.

In Stockholm, on the anniversary of the death of Nobel, Robert Koch was awarded the Nobel prize in medicine for his work and discoveries, especially in tuberculosis. A presentation address recounting the history of Koch's investigations was made by Prof. Graf Mörner.

Dr. F. B. Eaton has removed his office to the Shreve Building, corner Grant Avenue and Post Street, San Francisco.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, FEBRUARY, 1906. VOL. XV. No. 2, NEW SERIES.

Original Articles.

TRIANGULAR OPACITY IN THE SUPERFICIAL LAYERS OF THE CORNEA, OCCURRING IN SYPHILITIC SUBJECTS.*

WM. CAMPBELL POSEY, M.D.

PHILADELPHIA.

(Illustrated.)

In the first case, a lad of 17 years, the subject of congenital syphilis, the opacity assumed this peculiar form in the left eye, while under observation during an attack of interstitial keratitis, after the inflammation had run the ordinary course of that disease for about a year. As shown in Figure 1, which is more or less diagrammatic, and was sketched for the writer by his assistant, Dr. Swindells, the triangle, which occupied the lower quadrant of the cornea, with its apex near the pupillary center and its base at the limbus, was entirely superficial, of a rather glistening-white appearance, and seemed to be made up of a thickening of the epithelial and sub-epithelial elements. Under high magnification, a distinct elevation of the opacity could be plainly defined, this being ascertained the more readily by reason of the sharply defined borders by which the triangle was separated from the rest of the cornea. The sharp line of demarcation was not so marked at the apex of the triangle as elsewhere, for at this point the haze blended more or less imperceptibly with a general, though faint, cloudiness of the membrane surrounding it. The opacity was entirely avascular, and was composed apparently of a series of fine lines, which ran in a generally vertical direction, from the base to the apex of the triangle. The rest of the cornea presented the general diffuse haze and remnants of interstitial vessels which is usual after interstitial keratitis. In the right eye there were all the evidences of a previous parenchymatous inflammation, and just below the pupil, corresponding in position to the triangle of opacity in the left eye, there was an irregularly rounded area of denser haze. Both eyes were quiescent; there were no synechia and tension was normal. The patient had been under observation nine years, and, as during this entire time the opacities had remained unchanged, the condition was considered to be permanent.

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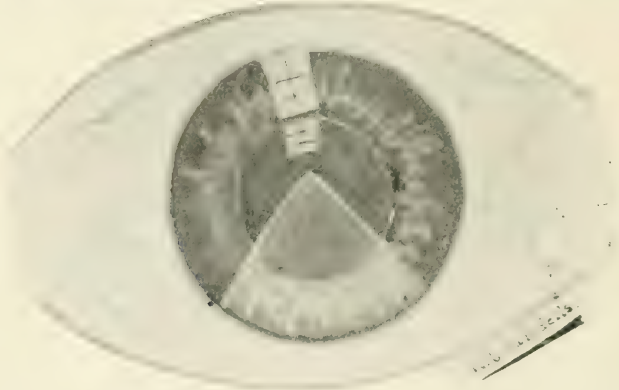
* Read at the November, 1905 meeting of the Section on Ophthalmology of the College of Physicians of Philadelphia.

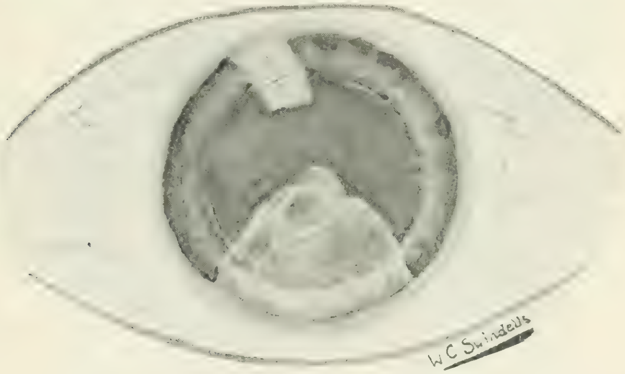
The second case presenting this unusual condition of the cornea, a colored woman 32 years of age, a subject of either late secondary or early tertiary syphilis, came to the Howard Hospital one month previously, complaining that for the past year the vision in the left eye had been misty, that the eye had been more or less irritated, though never the seat of marked inflammation, and that for some months she had noticed a whitish scum which seemed to be growing over the lower half of the eye. Inspection revealed a triangular zone of opacity, which corresponded very closely in character and position, as well as extent, to that which has just been described in the previous case, the loupe showing the opacity to be made up of whitish lines and of a more or less homogeneous whitish mass which was situated in the anterior layers of the cornea. A few small blood vessels ran over the opacity at its base and at its apex, bordering closely on the pupil, four or five spots of opacity could be descried in the posterior layer of the cornea. The cornea was elsewhere clear, with the exception of a very fine epithelial haze. The anterior chamber was deep, the pupil slightly dilated, the optic nerve pale and semiatrophic and the seat of a commencing glauco-



Case I.

matous excavation. Tension was +1; vision equalled 5/20, and there was no cutting in the visual field. The eye was considered to be the seat of a specific uveitis, with secondary glaucoma, resulting partly from the blocking of both the anterior and posterior lymphatic passages with plastic material, and partly from a change in the filtration properties of the intraocular fluids, as a consequence of the extensive involvement of the uveal tract. The right eye was normal.

Enunctions of mercury were prescribed and moderately strong doses of eserin were alternated with a weak dose of atropin. During the month which the case has been under observation, the base of the opacity has remained unchanged, but, as shown in Figure 2, the apex has lost the sharpness of its angle, and has assumed a tendency to become rounded off. If the glaucomatous symptoms can not be controlled by the measures just mentioned, and if vision and the field of vision become more impaired, an iridectomy will be advised, though this procedure will be performed with reluctance upon account of the unfavorable results which usually follow operation in cases where a plastic uveitis is a complicating factor.



Case 2.

OBSERVATIONS.

Although in the absence of microscopic study the statement is merely conjectural, it would appear that the opacities are limited to the epithelial and sub-epithelial tissues, and that they have been occasioned by the deposit of fibrinous coagula within the epithelium and by a calcareous degeneration of these cells. Not very dissimilar changes in constitution, though differing in form, have been remarked in the superficial structures of the cornea in other parenchymatous affections of that membrane, as, for instance, in keratitis disciformis and ribbon-shaped keratitis, and may be explained here, as there, by a change wrought upon the epithelial and sub-epithelial cells by the fluids of the inflamed uvea in general, but particularly of the substantia propia of the cornea itself. In the opinion of the writer, the triangular form of the opacity is to be accounted for by some peculiarity in the circulation of the cornea, either vascular or lymphatic, with which, as yet, ophthalmologists are unfamiliar. In all events, it is a matter of clinical experience that in cases of commencing keratitis parenchymatosa the cornea frequently becomes infiltrated in localized areas, and that sometimes a triangular opacity appears at the margin of the cornea, and retains that form for a time before extending over the entire membrane. This peculiarity in form has been attributed by von Michel to a syphilitic affection of the marginal loop of blood vessels, and, as has just been stated, it is not unlikely that the persistence of the triangle in the two cases which have just been presented, is dependent also upon vascular causes.

The opacities in the cases just cited are to be differentiated from those forms of keratitis parenchymatosa mentioned by Fuchs, where there has been an attachment of an exudate in the form of a triangle upon the posterior surface of the cornea, but are probably identical with the opacities observed by him which occur "in the inferior portion of the cornea in the form of a triangle with the apex up and which are the result of a parenchymatous keratitis."[1]

HERPES ZOSTER OPHTHALMICUS.*

EDWARD STIEREN, M.D.

PITTSBURG, PA.

Herpes zoster, zona or "shingles" is a benign and self-limited disease, discomforting by reason of the prodromal neuralgia and the groups of vesicles following the course of the nerve, the whole process ordinarily subsiding in from ten days to three weeks. *Herpes zoster ophthalmicus,* accompanied, as it may be, by agonizing and persistent neuralgia, ulcerative keratitis, iritis, panophthalmitis, meningitis and even death, may sometimes prove to be a dangerous manifestation of this usually innocent and mild malady.

My observation of six cases of the ophthalmic variety include two showing a wide disparity in the eruptive process and ocular involvement. These two may be considered classical illustrations of the extremes of herpetic eruption following the course of the fifth nerve.

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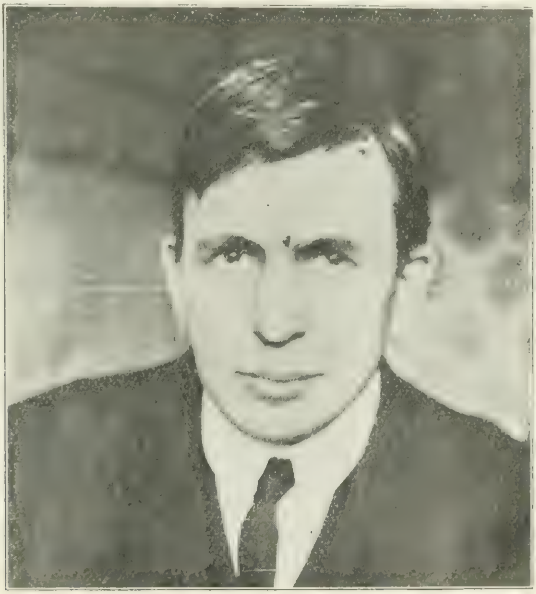
[1] Ninth German Edition, page 242.

* Read before the Pennsylvania Medical Society Sept. 27, 1905.

None of the other four cases demands any special mention, since all recovered with more or less pitting of the forehead and insignificant ocular complications. One of the four suffered a partial ophthalmoplegia externa, which subsided with the eruption.

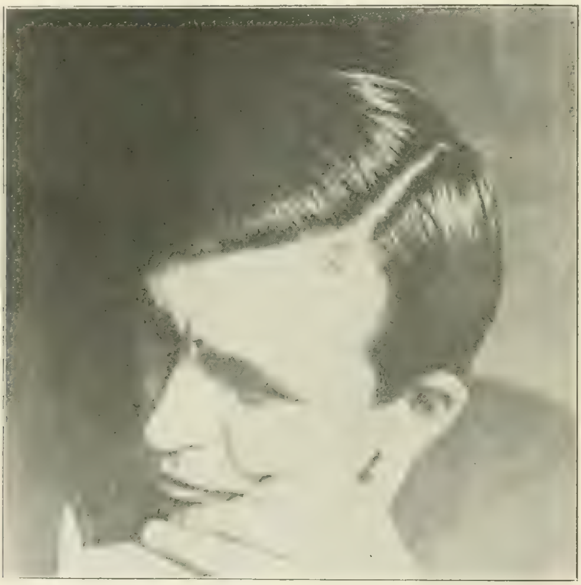
Following is a short history of the maximum and of the minimum case, with photographs of each:

Maximum Case.—F. H., a veteran of the Civil War, aged 60 years, by occupation a dry goods clerk. On the evening of Sept. 7, 1901, he attended a reunion of his regiment, indulging moderately in malt beverages and a light collation, leaving his comrades about 1 a. m. In order to catch a car he ran several blocks and arrived at his room about fifteen minutes later, somewhat exhausted and overheated. It being a warm night, he slept with the windows of his room wide open. Two days later he was taken with a chill and a neuralgic pain over his left eye, followed in twenty-four hours by an eruption of the skin of the left side of the forehead and nose. He was seen by a physician of the homeopathic school, who diagnosed his case erysipelas, and treated him accordingly.



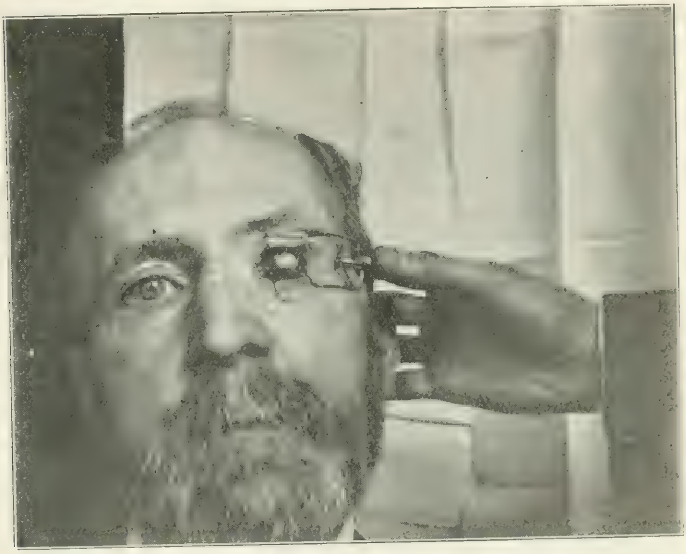
Minimum Case.

The affection was intensely painful, the patient suffering acutely with supraorbital and ocular pain. The eye was inflamed and sensitive to light and a complete ptosis of the upper lid accompanied the eruption. For six weeks these symptoms persisted, in spite of the use of electricity (form unknown), eyedrops and tablets internally. A hopeful prognosis was given at the beginning of the ocular involvement, then a guarded, followed by a decidedly unfavorable one, indicating that his ocular condition was becoming more serious, although the ptosis improved. He presented himself in the eye clinic of the Western Pennsylvania Medical College the latter part of October of the same year, with a decided and conspicuous pitting of the left side of the forehead and nose, forming a sharp line of demarcation, beginning at the margin of the scalp and extending in the median line to the tip of the nose. The left upper lid was pitted and scarred, the edge of the lid uneven and the lashes partially lost. Marked ptosis was present. The ocular conjunctiva was considerably injected, the palpebral conjunctiva was red and rough, with numerous yellow deposits in both the upper and lower lids. The cornea presented an irregular central area, about 6 millimeters in diameter, raised above the surface with a sharply defined margin, beyond which was clear corneal tissue. It had the appearance of that condition once described as onyx—a dirty yellow transudate in the substance of the cornea. There was no ciliary injection, the pupil was well dilated and the cornea insensitive to touch. Vision: Counting fingers at 12 inches. Ten-



Minimum Case.

sion normal. No details of the fundus could be seen. The patient, after several visits to the clinic, disappeared. It was subsequently learned that he entered the Soldiers' Home at Dayton, Ohio, where he suffered an enucleation. Since then the patient has died.

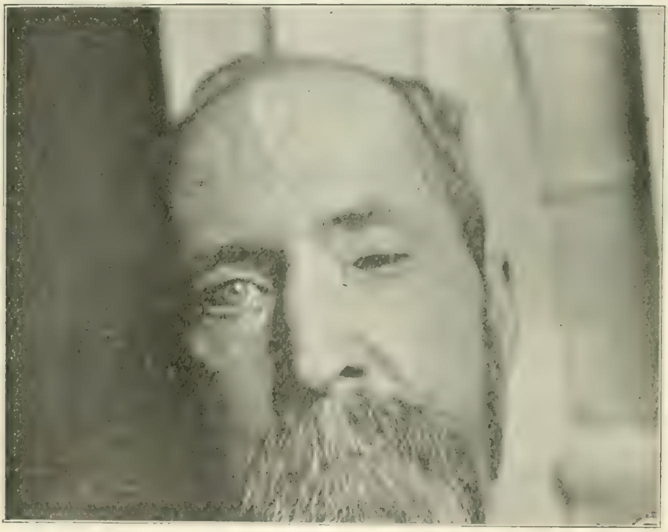


Maximum Case.

Minimum Case.—E. M. T., aged 30 years, an electrical engineer, had been on a shooting expedition Nov. 3, 1903, became overheated and suddenly chilled late in the day. I did not have the opportunity of examining him until November 9, but am indebted to Dr. John DeV. Singley for the following history: "I saw Mr. T. at my office on November 4 and 5. He was feeling as well as usual, but presented several vesicular lesions on the left side of his forehead. The upper portion of his nose and the adjacent portion of his forehead was swollen and red, and he had an indistinct pain, with tenderness over his left mastoid. He had no elevation of temperature—in fact, no constitutional symptoms of any kind." Mr. T. consulted me on account of his left eye, which was inflamed and slightly painful. I found a solitary bleb at 3 o'clock on the limbus, with as much conjunctival injection as one usually finds with a phlyctenule. Under the local use of calomel and a boric-acid collyrium the bleb at length disappeared, leaving a decided scar and a slight patch of congestion which persisted for several months. In all other respects the eye and its appendages were uninvolved.

The accompanying photographs show plainly the several cutaneous lesions.

Pathology.—Many postmortems have been made and much has been written on the pathology of herpes zoster. The concensus of opinion is that it is a disease similar in nature to acute poliomyelitis. In the intervertebral ganglia, acute inflammation with minute extravasations of blood, destruction of the ganglion cells and nerve fibers and inflammation of the connective tissue have repeatedly been found. The posterior roots usually show acute inflammation. The fibers of the peripheral nerves are found to be more or less degenerated, according to the degree of inflammation in the ganglia. In herpes zoster ophthalmicus, the Gasserian ganglion is found to be similarly affected. Some investigators have found a diplo-bacillus, which clouded bouillon, liquefied gelatin and stained by Gram's method, in the cerebrospinal fluid early in the disease. The bacillus was found in animals inoculated, the animals dying a few hours after being injected.



Maximum Case.

I do not believe, as has been stated, that herpes zoster is due to some obscure atmospheric condition coincident to a receptive condition in the patient. Nor do I believe in the acute specific hypothesis, since it never occurs in epidemics. In all the cases of herpes zoster ophthalmicus which have come under my observation I have been able to trace a history of exposure to cold or dampness after some form of unusual exertion, with consequent fatigue, in individuals of other sedentary habits.

A NEW DEVICE FOR ILLUMINATING AND CONTROLLING THE INTENSITY OF ILLUMINATION FOR THE AMBLYOSCOPE.

Nelson Miles Black, M.D.

MILWAUKEE, WIS.

(Illustrated.)

Mr. Worth, in the description of his amblyoscope, speaking of one of the special points of the instrument, says: "The suppression of the vision of the deviating eye is quickly overcome by the unequal illumination of the object slides."

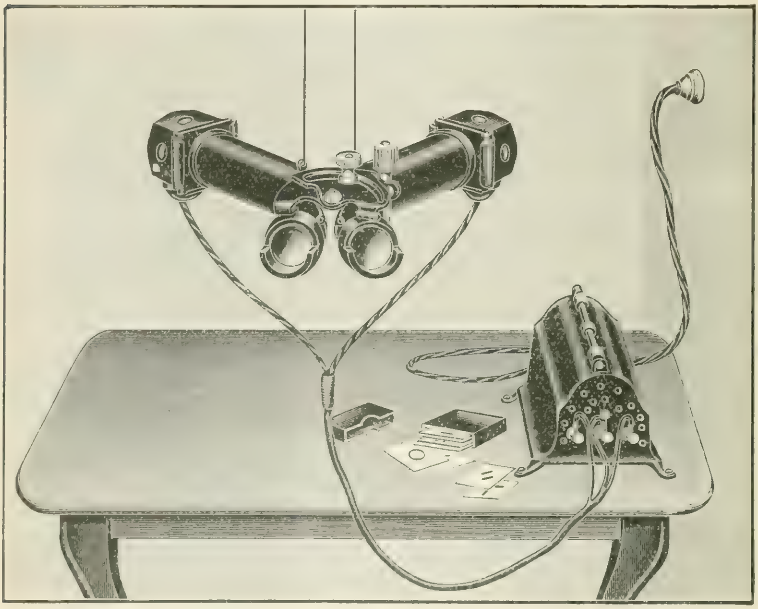
Worth accomplished this by placing an electric lamp in the axis of the tube of the amblyoscope, about 4 feet distant, bringing the one before the deviating or the amblyopic eye nearer the object-slide, to increase the illumination; after the establishment of binocular vision, an attempt is made to equalize the intensity of the illumination of each object, by moving the lamp before the deviating eye farther away, or the one before the better eye nearer.

The illuminating apparatus used by Mr. Worth consists of two arms about four feet long, movable in horizontal and vertical planes attached to an upright; these arms each support an incandescent lamp and can be adjusted to the height of the patient on the upright and can be swung to and from the amblyoscope. This apparatus is faulty, requires readjustment each time it is used, the source of illumination lights the whole room, which is a decided objection, as with young patients it is much harder to direct their attention to the object-slides if they can see about the room, and sufficient difference in intensity of illumination is not always secured, which is the main object in view.

Dr. A. Maitland Ramsey has devised a modified form of Worth's amblyoscope which is illuminated by "small electric lamps supplied with current by wires passing underneath and so controlled by a sliding bridge resistance that the degree of illumination can be varied with the greatest nicety. While resistance is taken from the circuit of one lamp and the brightness of the light thereby increased, additional resistance is thrown into the current of the other, with corresponding diminution of the brilliancy. This method of lighting can also be adapted to the original Worth amblyoscope."

This method of regulating the illumination was given a faithful trial, F. A. Hardy & Co. making up several models. None, however, met the requirements. The principle is right, but the fault lies in that the increased efficiency of one lamp results in the loss of efficiency of the other. In order to increase the illumination before the deviating eye sufficiently to overcome the suppression of vision, so much resistance is thrown into the current of the other lamp there is no illumination from it at all. Again, when the intensity of the two lamps is equalized, neither object-slide is sufficiently illuminated, the amount of current to each lamp being cut down so much by the resistance in the coil.

The following described apparatus seems to meet all the requirements:



Worth-Black Amblyoscope and Black's Electrical Attachment with Rheostat. N. B.—Illustration of Amblyoscope is exaggerated in order to show detail of instrument. Manufactured by F. A. Hardy & Co., Chicago, Ill.

It is not bulky, can be attached to the wall near where the amblyoscope is suspended or moved to any portion of the room wished. The lamps illuminate only the object-slides. The intensity of the illumination of each lamp can be controlled without affecting that of the other, or each can be used with its full illuminating capacity.

The apparatus consists of two metal boxes which slide on to the object holders of the amblyoscope. These contain miniature electric lamps of four candle-power. The boxes are about 4 cm. square, with the back and bottom concave. The concavity at the back acts as a reflector and allows a better circulation of air around the lamp, which becomes somewhat warm after long use. That at the bottom contains the socket for the lamp. There are three holes to allow greater air circulation. The insides of the boxes are painted white.

The lamps are supplied with current by wires running from the under side of the lamp containers to a bridge rheostat, which has two slides operating from each end of the rheostat to its middle. Each slide controls its respective lamp, and when at the middle the intensity of the illumination is greatest. This is gradually reduced as the slides are moved toward the ends.

The end of the rheostat opposite that to which the lamps are attached is supplied with a lamp cord and plug to fit in any incandescent socket. The apparatus is built to attach to a 110-volt direct current. The rheostat may be dispensed with and current furnished by attachment with two batteries in case current is not available.

128 Wisconsin Street.

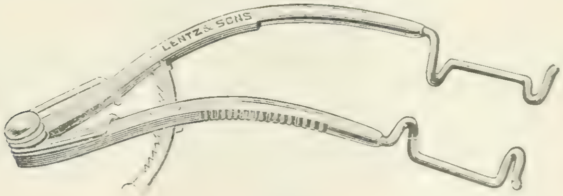
SELF-CHECKING SPECULUM.

S. S. Bishop, M.D.

HARRISBURG, PA.

(Illustrated.)

This self-checking speculum I devised about five years ago. Its practical merits have so exceeded my most sanguine anticipations that I feel it a duty to call, to it, the attention of the profession. By a little skillful practice it can be placed in the eye with one hand, the little finger manipulating the ratchet. When in the eye it can be closed to any point and instantly locked or removed by the thumb and forefinger. It is also so small and neat that when in position the operator is scarcely conscious of its presence.



A MEANS OF TIME SAVING WHEN REFRACTING.

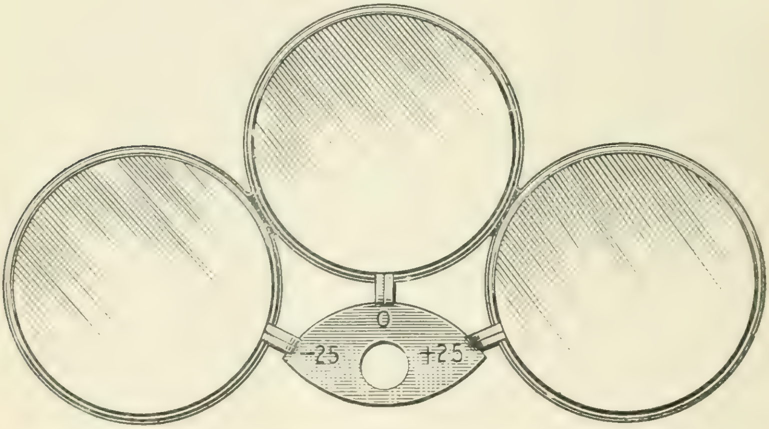
H. P. Lakin, M.D.

Instructor in Diseases of the Eye, Philadelphia Polyclinic.

(Illustrated.)

After placing the correction obtained by use of the test lenses, stenopaic-slit, ophthalmoscope, retinoscope (which I prefer), or any other means, in the test-frame upon the patient's face, it has been my custom to increase and then decrease first the spherical and second the cylindrical portion of this combination, and finally change both at the same time by means of the cross-cylinder.

At first I used lenses taken out of the test case and replaced again. As these were often needed in the frame, after a time I got extra test-lenses + 0.25 D. and — 0.25 D. spheres and cylinders. Several years ago I added a plano to be placed between the other two, thus using three test-lenses held in the hand and passed before the correction in the test-frame. This summer I had Messrs. McIntire, Magee and Brown of this city make for me, in both spheres and cylinders, sets of the two lenses and planos fastened in one handle. These are of the strengths 0.12 D., 0.25 D. and 0.50 D. They have proven very convenient and great time savers.



Let the patient wearing the combination obtained by any means read the lowest line possible on the test-card. Then taking the spherical set, pass in succession before the correction in the test-frame the plus, plano and minus lenses, having the patient read with each, giving an indication, according to which of the three gives best vision, to increase, let alone or decrease the spherical portion of the combination. Make the alteration indicated, and so continue until the plano gives best vision, showing an indication to leave the spherical portion unchanged. Then taking the cylindrical set, hold it so that the axis of the first lens is coincident with that of the cylinder in the test-frame and pass the three test-lenses before it in a similar manner. Make the alteration indicated and so continue until the plano gives best vision, indicating no further change of the cylindrical portion. Then take Dr. Edward Jackson's cross-cylinder (which increases the strength in one direction and decreases that at right angles to the former) and proceed as usual with it until no change is indicated by this means. Now the correct combination has been obtained.

The method of increasing and decreasing the strength of the sphere and cylinder, after the combination has been placed in the test-frame, is in very common use by oculists. I merely call attention to the convenience of having the three test-lenses set in one handle instead of taking each one separately from the test-case when needed and then replacing it, and to the increased rapidity of testing resulting from their use. The device of my colleague, Dr. J. N. Rhoads, which works by first using a plus, then a minus and finally neutralizing to obtain the effect of a plano, is on the same principle, but is much more complicated in its construction.

FOREIGN BODIES IN THE CORNEA.

C. C. Conkey, M.D.

SUPERIOR, WIS.

With the possible exception of errors of refraction, there is no one thing that the oculist is called upon so often to perform as the removal of foreign bodies from the cornea. This trivial injury may seem unworthy of a magazine article, but its very frequency makes it worth while.

It has been my fortune to see a great many of these little injuries, and for the last three years I have been compelled to keep a record of the injuries occurring in one large shipbuilding plant alone. In this plant during this period have occurred 360 minor corneal injuries, most of which were foreign bodies in the cornea.

The little flying particles of foreign material produce different effects upon the cornea in proportion to their material, size, heat and velocity. They consist of either small pieces of emery or particles of iron or steel. The former strikes the cornea with sufficient force to bury itself well into the corneal tissue, but is easily removed with the spud, leaving a clean wound which quickly heals. The steel may be but simple rust falling from the bottom of rusty vessels into the eyes of the workmen looking up from below. These injuries are extremely superficial and the particles are easily removed. They are often multiple, sometimes literally covering the cornea. I have taken nearly a dozen pieces from one pair of corneae. When the particles of steel fly from a heated rivet, the penetration is deeper and the particles are much more difficult to remove. They make two utterly different kinds of wounds. When intensely hot they bury themselves deeply in the substance of the cornea, and around them is formed a narrow white margin, showing the destruction of corneal tissue by the heat. These roll out easily from the necrotic corneal bed upon the spud. The greater proportion of iron or steel produce no such necrotic area. On the other hand, they seem to undergo an oxidizing process by which the iron blends with the corneal tissue, making the task of removal much more difficult. When this takes place it becomes necessary to curette the tissue till every trace is removed. The cornea is very intolerant of iron lodged in its superficial layers, and will not heal till every trace is removed. If not entirely removed it will slough out in the course of a week, during which time the eye is irritable and sensitive to light. Occasionally they penetrate the deeper layers of the cornea, and strange to say, cause but little discomfort. I have observed during the last year two minute particles sticking in Bowman's membrane without causing marked disturbance though present for several days.

The results following the removal of foreign bodies are so uniformly good that one would be inclined to ridicule the dangers of infection, did we not so frequently meet with it from other sources. In the entire series of the 360 cases no sign of infection has ever occurred. This has been a source of wonder to me, for the men injured are working in environments that are the reverse of hygienic. They are necessarily dirty and greasy. Many of them have been injured for days before the foreign body has been removed, and no small number of them have passed under the magnetized knife of one of the amateur ophthalmic surgeons in the person of a fellow-workman, one or more of whom always applies his cocain and his art before surrendering the case to the regularly constituted oculist. In spite of surroundings and the deep excavations in the cornea caused by knife blades that have never been sterilized, these cases all do well. Evidently, infection bacilli are not so widely distributed as we have been led to believe, or else the eyes of these robust workmen furnish unfavorable soil for their development.

I have quite recently seen two cases of septic ulcers follow the removal of foreign bodies from the cornea by two different surgeons. Both were very destructive. The worst case resulted in complete sloughing of the cornea and eventually in compulsory enucleation. In both cases the patients insisted that they had been infected by their doctors. These accusations may have been entirely groundless, but such an accident is liable to happen any man who is not strictly aseptic with his instruments. Surgeons who are irreproachable in their cleanliness in major operations look upon a foreign body in the cornea as such a trivial matter that they do not take time to sterilize their instruments, and therein lies great danger; for where will we be more apt to find septic germs than upon the point of an unsterilized knife in a physician's office?

A NEGLECTED DUTY.

James Branch Taylor, M.D.
BLOOMINGTON, ILL.

There is in many cases an obligation of the ophthalmologist to his patients which is neglected. I am referring to the weaning away of the patient from glasses which have been needed temporarily, and which can again be replaced by Nature's powers, much to the advantage and convenience of the patient.

Not speaking of the advancing steps of age which can not be retraced, it is now, in a sense which will be understood, a fortunately established fact that many younger people are the victims of insufficiency or faults of refraction, producing symptoms which can only be corrected by proper use of glasses. The recognition and wise use of this fact have brought humanity much relief. But back of this is the great fact of Nature's endurance and her ability to carry abnormal things for herself; and the wisdom in many cases of letting her carry them.

The observing practitioner soon realizes that there are a great many non-standard eyes in the world which are causing no bad symptoms. There is a unanimity of practice to let these eyes alone. The desirability of letting Nature carry the extra burden, with the one provision that she does so without irritation, is conceded. All that is asked is that she keep up the equilibrium. But our duty to bring her back to this equilibrium, in many cases where she has lost it, and where she can resume it, is not sufficiently recognized.

An asthenic girl or a tired student, each of practically normal refraction, comes to the oculist with blurring vision or pain attending close work. It is probably wise in the given case to fill the gap with a pair of lenses. To avoid arrearage and probably greater future trouble, the student must go on with his work. It may be wise conservatism to give the girl glasses, to afford her entertainment during a somewhat long interval, and so help the mental causes of recovery. It is just as clearly the duty of the oculist prescribing the glasses to watch over the cases, and help them lay aside their crutches under better conditions. A warning and a preparation for this plan should be part of the prescription.

Under some favorable conditions a hyperopia or an astigmatism comes to light and becomes manifest, which was previously latent and carried. The patient may need constant wear of lenses for the time, in order to afford the crutch for which Nature is crying out; but the conscientious problem with the physician should be whether, all things considered, the demand may not be temporary, and whether he may not by a graded and wise process bring the patient back to the condition where Nature will carry her burdens even-handed. This is, of course, a careful problem in which pros and cons and possibilities need to be carefully weighed. There are cases in which sufficient trial and demonstration have already been had, and in which under such tests and proofs hope of the redemption process is absolutely shut out. There is a set of cases in which departure from normal structure and balance is such that a wise construction closes the case at once, and sees that Nature demands the help without appeal and without return. The aberration is too great to attempt to safely carry it.

On the other hand, there is a middle class of cases, and one which figures to a percentage of considerable importance in a man's practice, in which the question of winning the patient back is a matter both of professional obligation and professional opportunity.

Not only in cases which have lost normal function—cases of what we may call normal asthenopia—but in cases which have lost supernormal or adapted function—the extra power which Nature builds up to meet abnormal refraction—there is often the chance, with care and patience, of putting things back on their old footing, and relieving the patient from the artificial burden of glasses.

When the history of former normal function or former tolerance of abnormal refraction leads the practitioner to believe that the patient may be restored to the advantages of single-handed combat without the use of glasses, there are three points of management which he must apply and use with the proper discretion:

1. He must improve his patient's tone and environment in so far as these are or have been faulty. Many a person, by reason of untoward circumstances or reduced general tonicity, has fagged in the use of his eyes to the point of needing glasses, who may throw these crutches away when he has been "renewed as to the inner man" by proper hygiene or medicine, or come into better circumstances. The duty of the thoughtful oculist is to watch for or help to these better conditions, and then put the party on his former vantage-

ground. How many oculists proceed to build up available patients—those in this class—to the point where they can dispense with glasses, and then help them to dispense with them? Why is the principle not as clear-cut here as in the application of crutches in any other class? That is, where it can be done it ought to be done.

2. The physician may instruct the hopeful case that at a certain time and under certain conditions he may gradually retrace his steps by using his lenses on fewer occasions and for more limited purposes. The latter may be taught to thus scientifically practice himself, and gradually and carefully come back to his original freedom. For such purposes, the medical man must, of course, have the co-operation of a conscientious and intelligent patient who will not abuse his privileges. The case, however, is just the same as in other fields where the patient must assist. It is clear also that this mode of procedure—the gradual relinquishment of lenses which have been worn—is applicable in particular to the class of patients who have been using relatively weak lenses. How many oculists give their patients the advantage of such care and advice? How many, by routine, simply dismiss the case with the prescription?

3. In cases of fairly strong or somewhat pronounced lenses, a staple method is to bring the patient back by a graded reduction of lenses. A considerable number of patients, and who should be handled in a distinct class by themselves, may be shaded back to zero in the use of glasses by this graded plan. It is an interesting process, a reward to the doctor and a relief to the patient, to see Nature pick up her powers again under gradual lessening of the artificial helps.

The rules for judgment in these cases, the bases on which the physician will make his discriminations and the injunctions for the patient, can not be gone into for limits of space; but this is of relatively small importance since the chief point is that in these matters oculists do not sufficiently practice what they will acknowledge to be right, and in accordance with analogies and wide-awake practices in other fields.

The summary is that we must carefully redeem an eligible and important class of our patients from the dictum of "Once wearing glasses always wearing glasses." In doing this we must scientifically discriminate between a temporary help and a permanent burden.

OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Chicago, February, 1906. Vol. XV. No. 2, New Series.

Editorials.

RESTRICTIONS OF SCHOOL WORK.

It sometimes happens that the family doctor must insist upon the withdrawal from school, either during the whole day or for only the afternoon hours, of children patients. Be it said to the credit of our public-school administration that its principals and teachers are generally willing and ready to recognize the justice and wisdom of the physician's views.

The opposition which he encounters from both child and mother is always annoying and often exasperating. But the difficulties are much greater for the oculist when he feels obliged, either from eye trouble or, as is more common, from both ocular and general disability, to give similar advice. In the case of the family physician opposition usually takes the form of fretting hostility on the part of an ambitious and precocious child to whom its school standing has become a fetich, while the mother, unless possessed of strong good sense and patience, dreads the enforced idleness of the child as an additional domestic burden.

But the difficulties encountered by the oculist in such cases are still greater, since the bookish child, who is forbidden near use of the eyes, is bereft of nearly all occupation within doors and too often has lost all taste for out-of-door amusements and occupations. The situation is a critical test of the mother. If indulgent and a poor manager and housekeeper, she plaintively explains that Johnnie's comrades being all in school he has no one to play with; there is nothing for him to do but stay in the house and read, and that he can not do, etc., etc., *ad lib.*

The situation is a trying one for both mother and child, and the oculist, too, often yields to the complaining opposition. Yet a wise and tactful mother can contrive to occupy the child with some useful occupation outside of reading, and it devolves upon the oculist to patiently, kindly, but firmly, point out the course to be followed, suggesting that the child has now an opportunity to be a help about the house, to run errands, to keep busy out of doors, and, above all, to learn to think of and care for others. Such advice is quite within his province, and it need hardly be stated that there are very many children who derive a positive benefit from such a change, outside of the physical improvement resulting from the escape from confining school life. The coöperation of principals and teachers can generally be secured by a written statement and by asking their opinion as to the child's health and vision as observed, day by day, in the school room.

The whole matter, and it is an important one, belongs, after all, to the civic duties of the physician and is to be facilitated by the instruction of our boards of education and parents in at least the rudiments of general and ocular hygiene. F. B. Eaton.

Correspondence.

TREATMENT OF TRACHOMA.

To the Editors:—I am pleased to be able to indorse what Dr. J. A. Pratt writes in the January, 1906, number of the OPHTHALMIC RECORD concerning the treatment of trachoma.

I have used the boric-acid massage for the last ten years, to the almost entire exclusion of other forms of treatment.

Lately I have been adding to the boric acid varying proportions of alphozone powder and, for home treatment, tannic acid and glycerin, grs. xl to ℥i.

I have just brought to a very satisfactory conclusion with this treatment two cases of over ten years' standing. Both cases are girls about 18 years of age.

The boric-acid massage was brought to my attention while serving as clinical assistant to Dr. Charles M. Thomas, of Philadelphia, twelve years ago.

Should be pleased to hear of any experiences with the boric-alphozone combination.

Very truly yours,
J. M. HINSON, M.D.

Reviews.

EXTRACTION OF CATARACT IN THE CAPSULE.*

MAJOR HENRY SMITH.

[Reviewed by Frank C. Todd, M.D.]

In view of the generally accepted opinion that the extraction of cataract is best made through an incision in the capsule, the views of Major Henry Smith, civil surgeon of Jullundur, India, are of intense interest. In this article the author seeks to show, as a result of his extensive experience, extending to over 11,000 cataract extractions, that the operation of extraction of cataract in the capsule is not only the ideal operation, when successful, but when performed by an expert, as safe as the capsulotomy operation. Of the 11,000 cases operated, about 2,000 were performed by the orthodox method of opening the capsule and leaving it behind, and over 9,000 were extractions in the capsule. Those extractions by capsulotomy were the earlier operations with few exceptions, and Dr. Smith now rarely ever performs capsulotomy. The following shows the results of extraction in the capsule in operations performed from May 31, 1904, to May 31, 1905:

Numbers	Iritis	Escape of Vitreous	Capsule Bursting	Capsule left Behind	First class Results	Second class Results	Failures
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
2616	0.3	6.8	8	4.28	99.27	0.38	0.34

The author does not extract cataract in the capsule in the case of cataract in children, atrophic cataract or those of the semi-gelatinous variety. These make up only 5.4 per cent. of those who were operated upon during this year, and only 3 per cent. of these were in adults. The incision made is one of liberal size, which is as deep as anatomy will allow, beginning at the sclero-corneal junction, cutting out in the cornea with a sweep half way between a normal pupil and the sclero-corneal junction. The speculum is then removed and a large strabismus hook is used by an assistant to lift up the upper lid, the lower lid being held down by the ball of the assistant's thumb. The assistant maintains this position until the operation is finished, for the author states that it is the free action of the orbicularis muscle in almost all cases which causes the escape of vitreous. The surgeon then places the curve of another strabismus hook over the cornea, about the junction of the lower with the middle third of the lens, and a spoon just above the upper lip of the wound. This hook is pressed directly downward and its position not altered until the lens is nearly out, a slight, steady pressure and counter-pressure being maintained. When the lens is more than half way out, the strabismus hook is shifted forward, so as to gently tilt the lid by getting the edge of it in the concavity of the strabismus hook. The strabismus hook is used instead of a spoon, because the latter, being sharp, may cause the capsule to give way and allow the body of the lens to escape. The lens in its capsule having been delivered, the eye is bandaged with the usual antiseptic pad. If a bead of vitreous has presented, it is snipped off with the scissors, and if the iris prolapses it is replaced before the eyelids are let go.

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* Archives of Ophthalmology, November, 1905.

The operator considers the preliminary instillation of atropin no advantage. He calls attention to the dangers of rapid work, which is apt to result in bursting of the capsule, and he states that from two to three minutes should be consumed in the entire operation. This is followed by no other "toilet."

The operation with iridectomy differs in no way from the simple operation excepting in the iridectomy. Of the 2,616 cases, only 8 per cent. resulted in a rupture of the capsule, and in half of these the capsule hung out of the wound and was removed with its contained lens matter. This the operator considers the most serious complication in this form of operation, we presume, because of the fact that vitreous is apt to escape in the removal of the capsule. In spite of this fact, if the capsule has retracted, he attempts by gently stroking, to press out its contained lens matter, or if the capsule is evident to the eye, he attempts to catch it with the iris forceps, though he admits the danger by suggesting that the operator should desist after one or two careful attempts. He considers that the escape of vitreous is seldom followed by evil consequences, and states that of his cases there were 6.8 per cent. in the 2,616 cases, but that only three of these resulted in evil consequences attributable thereto. There were only 9 cases in which much vitreous escaped, and these were from nervous patients, the escape taking place the moment the incision was completed, which can not, therefore, be blamed to the extraction in the capsule. In the 2,616 cases iritis resulted in 2 cases only, while in the 263 cases in which the capsule was left behind, iritis occurred in 5 per cent., and the author attributes the inflammation which occurred in these few cases to the irritation produced by the capsule and other remnants. He maintains quite correctly that iritis following cataract extraction is usually caused by the presence of the capsule and remnants.

Dr. Smith calls attention to the fact that by extraction in the capsule we eliminate after-cataract and iritis, and maintains that disastrous results follow as often, if not more often, the orthodox operation than the operation here described, and also points to the fact that when the capsule has been removed and the results are successful, the vision is necessarily more acute, and that there is no danger in the future of a reduction in vision from the formation of a secondary cataract. He admits that the operation is one to be performed only by an expert operator.

We regret that he does not give us any idea as to what vision is secured, but he states that only a No. 12 D. or 13 D. lens is usually required for reading when the capsule has been removed, which is about 2 D. weaker than the average required after capsulotomy. He states nothing regarding the greater amount of astigmatism which results from the corneal incision than from the conjunctival incision.

A comparison of this article with the little book written by Major H. Herbert of Bombay, India, upon "Cataract Extractions," based upon an experience of between two and three thousand operations, is of interest. Major Herbert performs the capsulotomy operation, and is usually obliged to do the needling later, though the following quotation from his book is significant: "The treatment of after-cataract is a matter of great importance in Europe; less so in India, where many patients are satisfied with only fair vision." From this one would judge, if convinced of Dr. Smith's opinion, that in Europe and America the extraction in the capsule is more indicated than in India.

OPTIC NEURITIS IN CEREBRAL TUMORS AND ITS SUBSIDENCE ON OPERATION.*

Leslie Paton.

[Reviewed by W. Gordon M. Byers, M.D.]

Paton discusses thirty cases in which it was possible to trace more or less fully the changes in the eye conditions subsequent to operations for cerebral neoplasm.

Stating the results broadly it could be said that useful vision had been saved in twenty-two out of thirty cases, and that in eighteen the vision was as good at the time of writing as it had been before the operation.

Operations at Queen Square for removal of cerebral tumors are always done in two stages. The first stage consists in removal of the bone, and if the intradural tension is very high, incision of the dura. The operation is completed usually after a week's interval. In practically every one of the present series of cases it was noted at the time of the first operation that the intradural tension was raised, and in some cases very markedly. In the few cases that it was possible to make an ophthalmoscopic examination between the first and second stages, little measurable alteration could be seen in the discs. About a week to a fortnight after the second operation there was usually definite subsidence of the swelling, and this subsidence went in a steady progression. By the end of two months in most cases the swelling had disappeared. In a few cases fresh hemorrhages and a slight recrudescence of the swelling occurred within the month following the operation.

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* Tr. of Soc. U. K., vol. xxv, page 129, 1905.

In the majority of cases the neuritis had reached a certain intensity when the case was first seen, but in four of them the course of the condition could be followed from its commencement. Paton gives a very interesting description of the rise and fall of the neuritis. It is interesting to note that in frontal and parietal cases the swelling reached, almost uniformly, a height of from three to five diopters. In cerebellar cases the average height of swelling was between five and seven diopters, while in the single case of pontine tumor it exceeded eight diopters.

Changes were noted in the macular area in five cases—one frontal case—one parietal case, two cerebellar cases and one extra-cerebellar case. The macular changes were of a fairly definite type. The appearance was that of a parabola with its apex close to but inside the macula. This was of a dirty, greyish-white appearance, and faded off as it spread out in the direction of the disc, ending up in a series of seven or eight lines of whiter, cleaner-looking dots. Later on the dirty, greyish-white surface changed into groups of dots of the same size and character as those composing the white lines, and this was the condition in these cases when first seen. These white spots, whatever their nature, seemed to lie in the most superficial layers of the retina; since, in one case, one of the lines could be seen crossing a small retinal vessel. In this case, too, another phenomenon was noted. The macular figure was present in its typical parabolic shape; but radiating from the fovea in all directions were a number of fine, greyish striæ. These did not run in the lines of the white dots, but kept more definitely the radial direction from the fovea, as described by Mr. Gunn in his paper at the Edinburgh Congress. Paton thought "that the first phenomenon was caused by an outflow of edematous fluid from the disc region running in under the membrana limitans interna of the retina and forced into a parabolic shape by the anatomic arrangements of the retina at the fovea, the fovea itself being beyond its limits; while the second phenomenon would be due to a general edematous infiltration of the retinal tissue; and the reason of the star-shaped figure being common in albuminuric cases and rare in cases of cerebellar tumor is that a general retinal edema is common in albuminuria and comparatively rare and of slight duration in cases of tumor."

A subjective symptom of importance was the frequent occurrence of transient attacks of blindness or dimness of vision. These lasted from a few seconds up to half an hour, and were most frequently met with in cerebellar tumors. Paton thought possibly it was due to some interference with the blood supply of the occipital lobe or to a temporary strangulation of the nerve either at the foramen or behind the disc as the result of increased intracranial pressure. Or it might have resulted from pressure on the chiasma by the infundibulum. The frequency of the occurrence of the symptom in cerebellar cases, and the fact that intra-ventricular pressure is always highest in these cases seemed to favor this view.

Another question which Paton tried to determine was the relationship between the side of the tumor and the vision. Of seven cases of frontal tumor three retained normal visual acuity throughout. In one the sight fell at one period to 6/15, but subsequently recovered perfectly. In the remaining three the sight of the eye on the side corresponding to the tumor was badly affected, while the other eye was left in a normal condition. Of the ten cases of parietal tumor, four retained good sight throughout; three suffered a definite loss of sight during the height of the attack, but subsequently completely recovered; and in three the sight was entirely lost with no recovery.

THE ELECTRO-MAGNET IN EYE SURGERY.

(1) Some Practical Remarks on Magnet Operations, by Prof. J. Hirschberg.

(2) The Correct Use of the Giant Magnet, by Prof. O. Haab.

(3) Electro-Magnet in Ophthalmic Surgery, by S. Snell.

The Ophthalmoscope, February, 1905.

[Reviewed by E. C. Ellett, M.D., Memphis, Tenn.]

The appearance of these three articles in one journal gives us a most excellent résumé of the whole subject, and it is creditable to our specialty that we find practical unanimity of opinion on the essential points in a subject as large and varied as this one of metallic foreign bodies in the eye. The articles are based on an aggregate of almost a thousand cases, and if they agree on any points we may accept those points as well established.

Foreign bodies lodged in the cornea, anterior chamber, iris and lens are comparatively simple matters. We will only discuss those in the vitreous chamber.

In the matter of diagnosis, opinions differ. Haab thinks we should not waste time with sideroscopes and *x*-rays, as the resting place of the foreign body is of small moment beyond establishing the fact as to whether it has or has not penetrated to the vitreous chamber. The wound of entrance should be examined for such information as it will give as to the path and size of the splinter. Hirschberg says that the criticisms of the sideroscope—especially Knapp's famous one—apply to the old Asmus instrument and not to his recent model, which "supplies a surprisingly simple and absolutely sure test." The *x*-ray he regards as of limited value. Snell attaches much importance to the exact localization of the foreign body, for which purpose he frequently uses the *x*-ray. Hirschberg speaks of the unreliability of the giant magnet as a means of diagnosis. All the observers gladly avail themselves of what help the ophthalmoscope offers when the media are clear enough to permit its use. The prognosis is, of course bad when the foreign body is so large as to cause extensive laceration and destruction within the eye, and also when the foreign body, of whatever size, is infected. Hirschberg's statistics of foreign bodies in the vitreous show good visual results in 53 per cent. of cases.

The treatment advocated by all of these writers is in the main the same, differing principally in the matter of instruments. Each disclaims any prejudice in favor of the instrument which bears his name, but——. Hirschberg's hand magnet is strong enough to draw some foreign bodies into the anterior chamber and out through their wound of entrance without touching the globe, while Haab's magnet can be made as weak as you will by increasing the distance of the patient from it or by attaching Lang's cable. Snell's magnet lifts seven ounces. In fresh cases, Hirschberg uses the hand magnet, in old cases the giant. Haab prefers the giant for all, but uses the hand at times, when the splinter is in the anterior chamber. On two points all are perfectly agreed: (1) that a splinter left in the eye invariably causes the loss of the eye sooner or later, and (2) while a fresh scleral wound made by the splinter may be used for its extraction, it is bad policy to make a scleral opening for the purpose, as the underlying coats are injured and permanent damage results. The best plan is to draw the splinter forward around the lens into the anterior chamber, and remove it through a corneal incision. Haab is the most explicit on this point, Snell the least. In fact, the latter confesses to enlarging old scleral wounds and making new ones, while stating the objections to it as above. He introduces the small magnet point into the vitreous, and tries to bring it in contact with the splinter. This maneuver Haab is most careful to avoid. By bringing the point of his magnet first toward the center of the cornea, Haab seeks to extract all foreign bodies by way of the anterior chamber. The method of using, as well as the instrument itself, should be borne in mind, as his opening sentence is a caution as to using the giant magnet in any but an intelligent and skillful manner. It is of interest to note that he prefers the stationary form of the magnet, with foot cut off, to any of the so-called portable magnets.

When all is said, the expense and lack of portability of the giant magnet will always be an objection to its employment. Except in the largest cities, few individuals and no hospitals feel justified in installing such an outfit, and the hand magnets and medium-sized ones (such as the "Victor") will probably remain the most used. To "fish" around in the vitreous on the supposition that a splinter is there, the magnet guided largely by the good genius of the patient, is a hazardous and uncertain procedure. Except in the hands of one expert in this particular field, the *x*-ray is far from an instrument of precision, and the "therapeutic test" is often the deciding one in cases where a disturbed vitreous precludes ophthalmoscopy. The prognosis is, therefore, always "guarded," at least.

Reports of Societies.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

Meeting of Nov. 14, 1905.

OSCAR DODD, President *pro tem,* in the Chair.

Dr. W. H. Wilder presented a case of paralysis of four cranial nerves following trauma.

The patient, a man of 30, three weeks ago sustained a crushing injury to the head, which caused a serious scalp wound, nearly tore off the right ear and caused a rupture of both membrana tympani. He was treated by the company surgeon for two weeks before he was seen by Dr. Wilder. He then had an extensive paralysis of the face, involving the following nerves symmetrically on both sides: The fourth nerve, the patient having no power to rotate the eye down and outward, the fifth nerve, both the sensory and motor branches, so that there is an area of anesthesia corresponding to the area of distribution of the nerve, and there is no sensibility of the cornea, which explains an existing lagophthalmic keratitis; the sixth nerve, the result being a convergence; the seventh nerve, the patient being unable to close either the eyes or the mouth. The eighth nerve was and is apparently normal. Bone conduction is good, although air conduction is reduced on account of the rupture of the membrana tympani in both ears. Immediately after the injury there was bleeding from both ears.

The treatment instituted was directed toward the cornea, and both eyes were kept closed by means of adhesive plaster strips. There was some superficial sloughing of the cornea, but this ulceration is now healing. Sensation is returning, that is, the heat and pressure sense; the pain sense is still absent.

The power of the seventh nerve is returning so that the patient can close his eyes slightly. He was given potassium iodid on the supposition that there was a clot from a fracture of the base of the skull, a fracture that supposedly extended through the petrous portion of the temporal bone. He is now taking 60 gr. of K. I. t. i. d., and mild faradism is being applied over the anesthetic area. There was no fracture of the vault of the skull.

He can see fairly well now. An examination of the fundus, although very unsatisfactory, shows no distinct lesion of the optic nerve. The patient can recognize slight hand movements in all fields. The pupil reacts to light. It is impossible to make any absolute test of accommodation. There is now slight power of movement of the eyeballs, although neither can be abducted. There is a great deal of engorgement of the eyeball. There is no lacrimation.

Dr. Henry Gradle presented a paper on "Punctate Conditions of the Fundus," which will later be published as a collective paper if histories are furnished by the members.

DISCUSSION.

Dr. W. H. Peck agreed with Dr. Gradle as to the scarcity of literature on this subject. He considered cases of Gunn's dots to be quite numerous, that they did not interfere with vision in any way. He had seen two cases of punctate lesion of the fundus with diminished vision which were promptly relieved by iodid of potassium; one patient would have slight attacks of hyalitis, following which myriads of small white spots would appear in the fundus of one eye. The same patient was also bothered much with an inflammatory condition of the lids.

There is no reason to suspect syphilis in this case. The second patient, a seamstress, was forced to give up her work because these spots interfered with her vision.

Dr. Thomas Faith reported two cases of punctate fundus lesion which will appear in Dr. Gradle's collective paper on the subject.

Dr. N. M. Black cited a case in which there was considerable muscular imbalance, which he thought at the time might account for the blurred vision of which the man was complaining. Vision was normal when first seen. The next day it was 6/12 in the right eye and below 6/6 in the left. Three days later vision was 6/60 in either eye. The visual fields showed a number of absolute scotomata and central relative scotomata. There were enlarged and boggy middle turbinates, especially on the right side. The anterior end of the bone was removed on the right side, the frontal sinus probed on both sides, and vision began to improve. Within eight days vision was practically normal in both eyes. The ophthalmoscopic appearances were almost negative, with the exception of minute spots, that seemed to be deposited around the macula, extending about a disc diameter in all directions. They were not easily discernible with the ordinary ophthalmoscope, but the electric ophthalmoscope brought them out very plainly.

At the last examination made two weeks after the first, the number of these spots had reduced considerably and there was no sign of a scotoma. As vision diminished the accommodative effort was lost. At six inches the man could not distinguish anything at all. At 18 to 20 inches he could distinguish large type. As vision improved accommodation came back. It was thought that the condition was a retrobulbar neuritis due to frontal sinusitis.

Dr. F. C. Hotz said that often it is difficult to decide whether these minute dots are in the retina or in the chorioid. Recent observations had led him to believe that in some of these cases of so-called punctate retinitis, the lesion is really in the chorioid and not in the retina. Last year he had under observation a patient who complained of intense sensitiveness to light and inability to use his eyes for any length of time. Sometimes fifteen minutes reading would induce asthenopic symptoms. He had been refracted over and over again, and the result of all the examinations showed a slight astigmatism, — .25 D. Ophthalmoscopic examination of both eyes showed numerous small white dots extending over the papilla toward the macula; one group above and one below. In the course of time many of these dots disappeared, and when last seen there were only a few left; the eyes were less sensitive to light, and the patient could read for an hour or two with comfort.

The subjective symptoms did not indicate a retinal disturbance. The identical condition was seen quite recently in another case, only the left eye being affected. Vision was 20/30, and the fundus showed these white spots. This patient complained also that the eye was sensitive to light, and that it ached easily. In this case there was found a slight haze in the vitreous.

Dr. George F. Suker read a paper on "Scopolamin and Morphia Anesthesia in Ophthalmic Surgery." The paper will be published in full.

Dr. C. D. Wescott, in discussing the paper, said that in the hospital in which he is in the habit of operating, use had been made of scopolamin-morphin injections given half an hour before the administration of the general anesthetic. The dose given was 1/6 grain of morphin and 1/100 grain of scopolamin. It is the opinion of the surgeons that the amount of ether given is lessened somewhat, and that as a rule the anesthesia is more pleasant and the patient awakes feeling better.

During the past week he had occasion to make three enucleations under this anesthesia, and he was very much disappointed, inasmuch as the stage of excitement was quite marked in each case, and though adrenalin and cocain were applied, the patient flinched and moved the eye even when it was supposed that he had quite sufficient ether to put him to sleep. He could not see that there was the slightest advantage to the eye surgeon, from the use of morphin and scopolamin, although it might be possible to obtain better results when use is made of the method of administering the combination as described by Dr. Suker.

Dr. W. H. Wilder referred to the use of scopolamin for cycloplegic purposes when a solution of one-fourth of 1 per cent. was regarded as the proper one. Several patients of some of his colleagues showed maniacal excitement with increased sensibilities when only a drop at a time of this solution was instilled into the eye, the dose not amounting to more than 1/60 of a grain all told.

If the absorption through the conjunctival sac is sufficient to bring on poisoning, he would hesitate about using such large doses as some surgeons are using by hypodermic injection. He has found that a very valuable adjunct to anesthesia, given one-half hour before the operation, is ¼ grain of morphin and 1/120 grain of atropin. It prevents the excitement that comes on with the administration of ether, and also prevents the marked secretion from the bronchial tubes and salivary glands that so often interfere with the operation. He thinks that great caution should be used with such large doses of scopolamin.

Dr. W. A. Mann has used scopolamin one-fifth per cent. in refraction work for many years; one or two small drops are instilled into each eye, and he has never had any serious results. He frequently gets a slight dizziness, but nothing more. He considers it not only unnecessary, but dangerous to use stronger solutions, when it is desired to get the cycloplegic effect. He would be afraid to use large doses internally, as he had heard one surgeon (a careful man) say he had used scopolamin-morphin according to the method described by Dr. Suker, and that he would never again use it.

Dr. Suker said, in closing, that what is true in ophthalmic surgery is not always true of general surgery, and *vice versa.* The dose of scopolamin used, 1/150 grain, is less than that recommended by all pharmacopeias and materia medicas, 1/100 grain being the average, and if a patient shows an idiosyncrasy for scopolamin, he will show it for atropin.

If there is any delirium after the first injection, there is no necessity of giving the second. To give only one injection, and that 1/6 grain of morphin and 1/50 grain of scopolamin half an hour before operation is wrong. If there is any noise around the patient the anesthesia is affected correspondingly. If the patient is given the first dose two or three hours prior to operating, and the second one hour before the mental and physical states of the patient are all that can be desired, and almost any operation can be performed, a few drops of cocain being instilled into the eye.

As to the dangers of this method, he is convinced that they are overstated. One of his patients had an abundance of albumen in the urine, symptoms of acromegalia and a bad heart; he had been advised against an anesthetic, but as an operation was absolutely necessary on account of sympathetic irritation, he used this mixture and had a very satisfactory result. Israel gave the mixture in about 500 cases without any ill effects which could be ascribed to the drugs. Reis, who has had the largest experience with this mixture, has used it for years with good results. Several obstetricians have used it to good advantage. In nearly 3,000 cases cited in the literature there were only six deaths, and these were not attributed to the mixture. If chloroform is given it must be given in minute doses and the surroundings must be absolutely quiet. There is less vomiting, less retching and less excitement. He thinks morphin and atropin are not to be compared with scopolamin-morphin, as the latter gives a true anesthetic effect. He has seen a variety of major operations done under the influence of this combination without a drop of chloroform being given.

Dr. F. C. Hotz reported a case of "Serious Intoxication from Homatropin Instillation." The case is reported in full in the December (1905) issue of this journal.

DISCUSSION.

Dr. F. A. Phillips cited a case which occurred in his practice, the patient presenting symptoms similar to those presented by Dr. Hotz's patient, only two drops of a solution of less than 2 per cent. strength having been put into each eye. The solution contained a small amount of cocain. The patient complained of dizziness before examination of the eyes at the office. She was placed in the reclining position, and was given aromatic spirits of ammonia and improved slowly. The pupils were dilated ad. max. She recovered sufficiently after twenty minutes to allow the examination to proceed; but at the conclusion of the examination the condition of collapse was again present, and aromatic spirits were again freely administered. The patient recovered sufficiently in about half an hour to be taken home. She was instructed to remain quietly in bed and to take ammonia at intervals during the afternoon. She arose at 6 o'clock, immediately had an attack of vomiting and then fainted. A physician who was called gave her more aromatic spirits of ammonia with good results, but she remained dizzy and depressed for about twenty-four hours. He thought that in these cases any opiate or sedative would increase the difficulty, and that the giving of morphia might possibly have aggravated the condition in the case of Dr. Hotz.

Dr. N. Reemen thought that he had seen patients in similar conditions as the result of extreme nervousness, so that he thought it not always safe to attribute such collapse to homatropin. Some patients are so nervous that the correction of a refractive error will make them dizzy, and they will feel as though they are walking on air. He was not sure that these small doses of homatropin could produce poisoning, still Dr. Hotz's case is certainly remarkable.

Dr. Suker cited a case that he had seen where 2 per cent. homatropin and 4 per cent. cocain had been used every five minutes for half an hour. The man was a stout, plethoric, middle-aged individual; he became delirious, his face was flushed and the pulse was scarcely perceptible, the tongue became swollen and protruded out of the mouth. He labored with the man thirty-six hours before he recovered, and then led him around for three days on account of his inability to see, and being mildly delirious all the time, he never learned whether it was the cocain or the homatropin that was responsible. He thought that there might be cases of idiosyncrasy to the drug.

THOMAS FAITH, Secretary.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS, PHILADELPHIA.

Meeting, Jan. 16, 1906, Dr. G. E. de Schweinitz, Chairman, presiding.

Dr. William M. Sweet exhibited a sailor, aged 63 years, with essential shrinking of the conjunctiva. which had existed for the past six years. The inflammation of the eyes was associated with a skin affection of both sides of the face, diagnosed as lymphoid psychosis. The atrophy of the conjunctiva affected both eyes. but was more pronounced in the lower cul-de-sacs than in the upper. In the left eye a new tissue mass extended from the lower outer limbus to near the center of the cornea, and a similar growth was beginning at the lower inner border of the right cornea. Adjoining the new tissue in the right eye was a circular area which stained with fluorescin, and probably marked the spot of a ruptured bullæ.

Dr. Burton K. Chance exhibited a case of trachoma in a young negro girl, the patient, however, not having the typical black color of the true negro.

DISCUSSION.

Dr. Pyle stated that he had never seen a case of trachoma in the true negro. Dr. Thorington said that this was also the experience of Dr. Bruns, as well as himself, and wondered whether the disease would be any longer in disappearing than in other races more predisposed. Dr. de Schweinitz had seen a number of negroes with trachoma, but could not be sure that any of these negroes were of pure blood. Dr. Chance, in conclusion, said that he had an opportunity some years ago to examine the eyes of several hundred negroes on an island of the Bahama group and had not observed a single case.

Dr. William Zentmayer exhibited for Dr. Posey a patient who had developed argyrosis from the use of argyrol. Patient had employed a 25 per cent. solution twice a day for two and a half months following an expression operation for trachoma. After discontinuing for two and a half months it was again employed for three to six weeks on his own accord. When examined later argyrosis was present, especially in lower cul-de-sac, but has since gradually lessened in intensity.

Dr. G. E. de Schweinitz made some remarks on the use of the newer silver salts compared with nitrate of silver, confining his remarks entirely, except in incidental mention, to protargol and argyrol. At one time he had employed protargol very freely as a substitute for nitrate of silver, but had found it comparatively unsatisfactory and had abandoned its use. He thought it was particularly objectionable because it secured no better results than nitrate of silver and was often markedly irritating. Also, it was very prone to produce argyrosis. He had employed argyrol first as a substitute for nitrate of silver in all forms of conjunctivitis, except diplobacillus conjunctivitis, in the treatment of purulent conditions of the lachrymo-nasal passages, in the management of infected corneal ulcerations, and in the preparation of the conjunctival sac prior to operations. In his earlier experience he had been inclined to think that argyrol was a satisfactory substitute for nitrate of silver in various conjunctival inflammations, and particularly in ophthalmia neonatorum, but within the last year had met with so many cases in which he had been obliged to abandon it and substitute nitrate of silver, that his faith in the remedy had been seriously shaken. He was satisfied that nitrate of silver properly applied in gonorrheal conjunctivitis of new-born babies and in gonorrheal conjunctivitis of adults frequently was a more satisfactory remedy, although he recognized its many disadvantages. He had been accustomed to employ argyrol by the so-called "immersion method" advocated by Myles Standish, Bruns and other authorities, and continued to use it in certain cases, but not to the exclusion of nitrate of silver. He thought the plan advocated by Dr. Bruns, that after its use for a few days nitrate of silver should be applied once a day by the surgeon, and in the meantime the conjunctiva should be kept flushed with the argyrol, a good one. In many cases of gonorrheal conjunctivitis he did not believe that of itself it was a safe remedy, or, at least, as safe as nitrate of silver, and in a certain number of cases it failed completely and nitrate of silver had to be substituted. He continued to find it useful as an adjuvant in many forms of conjunctivitis, particularly of mild type, and thought it a satisfactory remedy for irrigating the lachrymonasal passages if purulent discharge was present. He also continued to find it useful in cleansing the conjunctiva, if there was hyperemia or slight discharge, preparatory to operations on the globe. Taking his experience as a whole, and it had been a very considerable one, he was satisfied that neither protargol nor argyrol represents in any sense a satisfactory substitute for nitrate of silver in gonorrheal affections of the conjunctiva. He recognized the importance of having fresh preparations of argyrol, which he was accustomed to employ in a strength of never less than 25 per cent.

Dr. Hansell agreed with the opinion of Dr. de Schweinitz regarding protargol and argyrol. He had given it a fair trial by dropping it into the conjunctival cul-de-sac at regular intervals in gonorrheal cases and had found it unsatisfactory. It was his custom in these cases to employ irrigations with permanganate of potassium solutions, 1 : 3,000 to 1 : 600, together with topical applications of nitrate of silver, grs x to ℥j. He also insisted upon the constant application of ice as being of the utmost importance.

Dr. Thorington related the case of a soldier who had infected his wife and whose baby had gonorrheal ophthalmia. Protargol was employed by the physician and both eyes were lost. The attending nurse became infected. Topical applications of nitrate of silver were immediately employed, and later protargol with good results.

Dr. Zentmayer stated that he agreed with Dr. de Schweinitz in his experience. In his clinic at the Wills Hospital his assistant, Dr. Dewey, had practically abandoned the use of argyrol except in dacryocystitis, catarrhal conjunctivitis and ophthalmia neonatorum. In the last two affections nitrate of silver is employed at the clinic and argyrol ordered for home use. He had but little experience in its use in gonorrheal ophthalmia of the adult, as such cases were not admitted to the wards of the Wills Hospital.

Dr. Ziegler believed that in gonorrheal ophthalmia nothing takes the place of silver nitrate, grs. x to ℥j, the excess being neutralized. Argyrol was a good adjuvant, but he had abandoned the use of protargol. He does not think that argyrol seems to be as good now as when first introduced.

Dr. Veasey stated that in view of the experience of so many of the members regarding argyrol, he almost hesitated to give his own. Protargol had been abandoned by him several years ago. Argyrol he had employed since its introduction, and during the past two years had used it in cases in which he had formerly employed nitrate of silver almost to the exclusion of the latter. These cases were the different varieties of conjunctival disease in which there was more or less discharge, and corneal ulcers in which there was considerable sloughing. He had occasionally employed it in purulent lachrimal disease, but was always afraid of forcing some of the solutions into the surrounding tissues. Indeed, this had occurred in one case in his hospital service, and there resulted a stain which was becoming gradually less marked when the patient passed from observation, three or four weeks later. His experience in its use in gonorrheal ophthalmia in the adult was very limited because none of the hospitals with which he was connected admitted such cases. It is his custom in using argyrol to have instilled into the conjunctival cul-de-sac a drop or two of a 20 per cent. to 30 per cent. solution immediately after each irrigation, no matter how frequently the latter is made, the frequency depending upon the rapidity of the formation of the secretion. Once a day he himself instills a much stronger solution—40 per cent. to 60 per cent. Formerly he applied this to the everted conjunctiva, but of late he simply instills it. He had thus far been disappointed, but seldom in the results obtained as compared with those obtained from the use of nitrate of silver, and thought that he had been able to lessen the profuse discharge of pus in ophthalmia neonatorum more quickly with argyrol than with the silver nitrate. He had always been careful to employ only freshly prepared solutions.

Dr. Pyle thought that nitrate of silver might do great harm in the hands of the unskilled. He related a bad result with great reaction that had followed the use of protargol, but he had never seen any ill result from argyrol. He had observed one case of staining in lacrimal disease, but the stain had disappeared in six weeks.

He did not use protargol at all and employed argyrol in the manner described by Dr. Veasey. In purulent conjunctivitis he had obtained excellent results from the use of a 50 per cent. solution of boroglycerid twice a day.

Dr. Sweet stated that in some cases in which he had used argyrol he was obliged to substitute silver nitrate. He depended largely upon glycerin and tannin for chronic conjunctivitis.

Dr. de Schweinitz, in reply to a question as to his method of using nitrate of silver, stated that he seldom used a solution stronger than 2 per cent., and that after it had been applied to the everted conjunctiva he waited until a whitish film was formed, which was washed off and an application made of pure petrolatum.

Dr. G. E. de Schweinitz described a case of acute pneumococcus conjunctivitis of the left eye, followed in sixty hours by a similar conjunctivitis of the right eye, and twelve hours later by the formation of a large bulla on the center of the right cornea. The base of the bulla was 5 mm. in diameter and its apparent height about 3 mm. There was some ciliary irritation and slight hyperemia of the iris. The bulla ruptured, the collapsed epithelial walls were removed and the abraded surface remaining cauterized with nitrate of silver. Healing was uneventful, and at the end of a week there had been complete regeneration of the epithelium and vision was normal. At no time was there the slightest infection of the abraded surface, in spite of the surrounding purulent secretion, in which pneumococci were freely present.

Dr. Howard F. Hansell reported a case of extraction of a piece of steel from the crystalline lens by the electric magnet. He divided the operation in the case of this patient into, first, the cautious approach of the Sweet magnet until the fragment of steel was seen to leave its bed in the posterior part of the lens and slowly move forward into the anterior chamber through the pupil, accompanied by soft lens matter; and, second, an incision through the cornea at the site of the original wound of entrance of the foreign body and the extraction of the body from the floor of the anterior chamber by the application of the blunt tip of the magnet to the wound. The opaque and broken lens was expressed through the corneal opening. Dr. Hansell called attention to a possible fallacy in the localization schemes that had not been considered. The diagrams of localization by the x-rays are based upon the emmetropic eye, and no allowance is made for differences between the emmetropic eye and those that are highly myopic or hyperopic. In a few instances the body might be located in the orbit or in the coats of the ball when its true site is in the vitreous, or *vice versa.* Again, in the case of a swollen lens the body might be described as in the vitreous when its real site was in the lens. Practically, such errors are seldom worth considering, but in making the calculations their possibility should be borne in mind.

Dr. Sweet said that the existence of a high degree of H. need only be considered in bodies that were localized in the chorioid or sclera, in which a smaller eyeball than normal would place the body in the orbit. In all cases of bodies shown to be in the sclera, several radiographs were made before finally deciding the position of the metal. Allowance was always made for the size of a child's eye. If a body is shown on the localizing diagram to be partly in the lens and partly in the vitreous, the substance must have occupied this position immediately after the injury, even though the lens by subsequent swelling may have completely enveloped the body.

Dr. Ziegler referred to a case seen two weeks before in which a foreign body had been located inside the globe, but which he was unable to remove with the magnet because it was outside the sclera, that might be explained by the points to which Dr. Hansell had called attention. He thought that all foreign bodies in the posterior segment should be extracted through a scleral incision.

Dr. William Zentmayer presented a case of probable bilateral obstruction of the central artery of the retina. Following severe fright in the evening, the patient, a colored man aged 48 years, noticed failing vision in the left eye. The following morning this eye was blind and in right eye only the lower field remained. Two days later the pupils were 3.5 mm. The ophthalmoscope showed in left eye all of the arteries greatly contracted, the superior temporal a mere thread, veins enlarged, retina very hazy, but no cherry-red spot. In right eye the same general appearance except that the inferior artery was alone greatly contracted. Patient has arteriosclerosis and high blood pressure. Has used wood alcohol for cleaning silver and windows for past three years; none for three days previous to attack. Never had any intoxication symptoms. The treatment consisted of mechanical massage, digitalis and nitroglycerin. Vision one month later: Right eye, 5/v; left eye, 5/xv pt. The caliber of the arteries, except the superior branch in left eye, has improved somewhat. The nerves are pallid. The absence of toxic symptoms, the small pupils, the marked vascular disturbance and correspondence with blind area in field in right eye, and the steady improvement in vision favor obstruction. On the other hand, the use of wood alcohol, binocular lesion and absence of typical obstruction-picture favor toxic amblyopia. Subsequent loss of the visual gain would make this diagnosis almost certain.

Dr. Ziegler related a somewhat similar case seen by him several years ago. He had also seen a case of complete recovery from methyl alcohol poisoning which had been produced by inhalation of the fumes for an hour daily.

C. A. Veasey, M.D., Clerk of Section.

CLEVELAND ACADEMY OF MEDICINE.

EYE AND EAR SECTION.

Dr. William Evans Bruner presented the following case:

Mrs. M. F., aged about 50, first consulted a physician concerning her present difficulty about three years ago, when something like a small bleb was noticed on the left side of the nose. About one year ago she consulted an oculist, who gave her local treatment, and in the spring she was at St. Alexis Hospital for two months, where she had a slight operation upon the growth and some mucus was evacuated from the incision made into it. Her history is very unsatisfactory, but she states the sight in the left eye has become bad only recently. She has no pain about the growth nor in the eyes. There is no indication of any growth elsewhere in the body and her general health is good. Vision is O. D. 4/35 — O. S. fingers at two to three feet. The ophthalmoscope reveals opacities in the central portion of each lens, which are more marked in the left, but sufficient in each eye to account for the poor vision. The fundus shows nothing pathologic. There is a large growth over the root of the nose, extending slightly up on the forehead and to the left side about the inner canthus and inner portion of the lids, especially the upper portion. There is a small spot of ulceration with indurated edges on top of the growth and some ulceration of the skin on the left upper lid at the inner canthus. The growth is slightly dark in color, moderately soft in consistency and bleeds readily at the point of ulceration. The left eyeball is pushed toward the temporal side and slightly forward. There is decided limitation of movements in all directions, but especially inward and considerably also upward and downward. The growth can readily be felt in the orbit. The appearance would suggest the ethmoidal sphenoidal sinus as the starting point, but the report of the examination of the nose was negative, although it might be well to state that this was not made by a competent specialist. The appearance would suggest sarcoma, though sections made six months ago while the patient was at St. Alexis Hospital were pronounced adenocarcinoma. The growth of the tumor has been more rapid recently than at any previous time. The case is, in my opinion, inoperable.

Dr. Mark D. Stevenson of Akron, Ohio, exhibited a new capsule punch for removing membranes from the post-pupillary space in traumatic or secondary cataract and for making an artificial pupil. He stated on the authority of Parsons that as no fibroblasts are present in the lens, fibrous tissue is not formed in membranous cataracts due to purely lenticular wounds, but only when there is coincident injury to the iris or adhesion to the corneal wound. He considered the nature and formation of capsular opacities and the choice and advisability of operative procedures. In tough fibrous membranes, especially if in addition a black pupil be desired for cosmetic reasons, he advised the use of the capsule punch and stated its advantages.

Obituary.

SWAN M. BURNETT.

Swan M. Burnett, known everywhere as one of the world's leaders in ophthalmology, died at his home, 916 Farragut Square, Washington, D. C., Jan. 18, 1906, of edema of the lungs, resulting from organic heart disease, which of late years had somewhat curtailed his activity. He was not only known as a physician, oculist and teacher, and specially famed as an author upon ophthalmic subjects, but was noted as an art lover and a philanthropist.

Dr. Burnett was 58 years of age, and had resided in Washington for thirty years. He was a native of Tennessee, and lived in that state until going to Washington, practicing medicine in Knoxville.

The deceased was, with Dr. Louis Marple, Dr. James E. Morgan and others, one of the moving spirits in the founding of the Emergency Hospital of Washington, when in 1881 it first opened its doors in limited quarters at Tenth and E Streets. Dr. Burnett was connected with the institution up to the time of his death. He was one of the managers of the Cosmos Club and a member of the Columbia Historical Society. He has long occupied the chair of ophthalmology at the Georgetown Medical School. He was a member of a number of scientific associations; among these the American Medical Association, the American Ophthalmological Society, International Medical Congress, International Ophthalmological Congress, etc. Dr. Burnett was a patron of fine arts, and among his effects is a large collection of paintings, first editions, Japanese curios, and articles of historical significance in the early annals of Washington.

The deceased leaves a wife by a second marriage, but there are no children in this branch of his family. He had been previously married, the first wife being Mrs. Frances Hodgson Burnett. By his first wife he was the father of two sons, one, the original of "Little Lord Fauntleroy," is dead, but Vivian Burnett, the second son, is now connected with *McClure's Magazine* in New York.

A particular hobby of Dr. Burnett was Japanese art. He wrote many articles for *the International Studio,* the *Craftsman* and the *Connoisseur* on this subject, dealing especially with the work of Korion, whose potteries and pictorial decorations he rates as among the masterpieces. Dr. Burnett's own collection of Japanese art objects is one of the most remarkable in the world. While it differs from the Freer collection, it is in many ways as notable. His interest in the art of Japan was largely centered in its application to the objects of domestic use, such as tea services, porcelains, mural decorations, utensils for the kitchen and for the farm, and lamps. His collection of war implements, helmets and swords was large. Many of them were presented to him, and others he had himself bought from Japanese noblemen.

Dr. Burnett's love of books was as great as his interest in art. He accumulated a library of many thousands of volumes, some of them first editions, and a large number of them bearing the author's autograph. His medical library is one of the largest in Washington and comprises many rare works. His own scientific writings are numerous, published in many medical journals, and found their expression in several books. He is specially known as the author of a work on Astigmatism.

I look back to the year of 1888, spent as his assistant, with particular pleasure, and know that his example has been one of the principal factors in keeping my interest up in scientific ophthalmology, for he is responsible for my writing proclivities. He aided me in scientific work more than any teacher I have ever had.

In him I particularly feel the loss not only of a teacher, but of a steadfast friend, and believe that I feebly express the feeling of the medical profession. His life and example will remain one of the guiding stars of ophthalmic progress.

H. V. Würdemann.

DEATH OF DeWECKER.

We regret to announce the death of Baron De Wecker of Paris. He was 73 years of age. We have lost in DeWecker one of the "Fathers of Ophthalmology," and one of the greatest ophthalmic surgeons of his day. He was oculist to Napoleon the Third and to the Spanish Court, and counted among his patients many of the noted persons of Europe, such as Gambetta, Thiers, Napoleon Third, Empress Eugenie, Grand Duke Alexis, Queen Isabella and many others. His practice in Biarritz in summer was enormous. He was von Graefe's chief of clinic and associate of Arlt and Jaeger. He succeeded the distinguished Desmarres in Paris and introduced the ophthalmoscope in France; and, as you know, was the author of many works on ophthalmology. The French government made him Grand Officer of the Legion of Honor, besides he was decorated by nearly every crowned head of Europe.

Notes and News.

PRIVATDOZENT DR. PAUL ROMER of Wurzburg has been given his title of Professor.

DR. L. WEBSTER FOX of Philadelphia has gone to Jamaica for a several weeks' stay.

DR. SACHSALBER, Emeritus Professor of Ophthalmology in the University of Graz, is dead.

DR. FREDERICH HOSCH died recently in Basel, where he was Professor of Ophthalmology.

PROF. DR. ADOLPH SACHSALBER, Professor of Ophthalmolgy in Graz, died on December 29 last.

THE American Academy of Ophthalmology will meet in Detroit, Mich., Aug. 30-31 and Sept. 1, 1906.

DR. ALBERIC JEAN MARIE ROGMANN, chief of the Ophthalmic Institute in Ghent, died recently in that city.

KUHNT has seen good and lasting effect in the conjunctivitis of hay fever from the use of anesthetics in powder form.

PROF. DR. HERMAN KUHNT has been chosen Rector of the University of Koenigsberg, in which he is the Professor of Ophthalmology.

AT a recent meeting of the Mexican Ophthalmological Society, the following officers were elected: President, Dr. D. M. Velez; Vice-President, Dr. J. Ramos; First Secretary, Dr. E. Graul; Second Secretary, Dr. M. Ramisey; Treasurer, Dr. E. F. Montano.

A NEW society under the name of the Eastern Illinois Ophthalmological and Otological Society has recently been organized. This society at present includes specialists on the eye, ear and throat, located in Danville, Champaign, Bloomington and Decatur, Ill. Officers are to be elected later.

DR. WILLIAM ROBERTSON reports from Durham, Natal, in the *British Medical Journal* of January 13, a very perfect example of that rare vestigium, a third eyelid. The subject was an adult male Indian. The supernumerary eyelid was situated under the right upper eyelid and protruded when the eye was in natural function 2 mm. beyond the margin of the natural lid. It was normally sensitive and cartilaginous to the touch.

DR. J. W. STERLING has succeeded to the chair of ophthalmology in McGill University, Montreal, made vacant by the death of Dr. Frank Buller. Dr. Sterling received his medical training at the University of Edinburgh, from which institution he was graduated in 1884. Following his graduation, he was house surgeon at the Royal Infirmary, Edinburgh, under Dr. Argyl Robertson. Dr. Sterling has resided in Montreal since 1888, and has been lecturer in ophthalmology at McGill for the past seven years. As head of the ophthalmological department at the university he is also head of the same department in the Royal Victoria Hospital. Dr. Sterling was recently appointed vice-president of the ophthalmic section of the British Medical Association, which is to meet in Toronto in August. He is a member of the Ophthalmological Society of the United Kingdom and has been a frequent contributor to the leading medical periodicals.

SHEET PARAFFIN IN EYE AND NOSE LESIONS.—E. Moraweck and G. C. Hall, Louisville, Ky. (*Journal A. M. A.*, February 24), recommend the use of splints made of dentist's sheet paraffin in nasal surgery to prevent adhesions, etc. The paraffin can be cut to suit the needs of the case, and if handled with clean hands and shaped with clean instruments and with the additional precaution of scraping it just before introduction, they have not found it necessary to keep it in irritating antiseptic solutions before using. They find the splints much better for preventing adhesions than either the gauze tampon or the Bernay splint, besides being less painful and inconvenient. Details are given as to their use in cautery operations, after submucous resection of the septum, after turbinectomy and in septal deformities, spurs and ridges. The authors do not invariably use these splints in nasal work, but probably in about 50 per cent. of their cases. In eye work they have used the material in only one class of cases, in extensive lesions of the conjunctiva in which adhesions are threatened, or after operations for symblepharon. A piece is shaved to about half its original thickness, molded over an artificial eye, a circle is cut out in the center so that it does not encroach on the cornea and it is then inserted into the conjunctival sac and left there as long as necessary. It is well tolerated, permits cleansing and after-treatment. This use of paraffin, the authors think, is original with them. The article is illustrated.

INJURY OF EYE FROM PARAFFIN INJECTIONS FOR SADDLE-NOSE. —Uhthoff, in the *Berliner klinische Wochenschrift,* reports that he has had two experiences of this kind. In the first, embolism of the arteria centralis retinæ developed immediately after injection of paraffin with a melting point of 43 C. It was the third injection, the two others having been made eight and five months before. He theorizes that the paraffin, still in a fluid state, must have passed into a vein and thence through the lungs and entered the arterial circulation, reaching the arteria centralis retinæ in this way. In the second case a man of 57 had been successfully treated for saddle-nose, but after working in the garden on a very hot day a few months later he experienced a strange sensation in the eyelids and rubbed them. They swelled to such an extent that he was unable to open his eyes. Erysipelas was diagnosed at first, but excision of a scrap of lid tissue revealed that the trouble was inflammation from the presence of paraffin. In order to enable the patient to see at all, the large, hard, tumor-like masses which closed the eyelids completely were removed in several sittings, with the result that the patient is able to open his eyes enough to see. The inflammatory giant-cell proliferation in and around the droplets of paraffin was evidently the result of both the mechanical and the chemical action of the foreign body, the paraffin, which had found its way into the lids. Several somewhat similar cases have been published, but none in which the resulting disfigurement was so severe. He reviews the literature on the subject, citing several cases of blindness, and concludes with the warning not to inject too much paraffin at a time, and not to inject it in the centripetal direction of large venous tracts. He advises waiting a sufficiently long time before repeating the injections, to arrest the circulation in the adjacent blood vessels during the injection, and to use paraffin with a high melting point. Accidents have been reported after the use of hard paraffin, but they have not been so numerous or so severe as those after injection of paraffin with a low melting point.—*Jour. A. M. A.*

AN IMPROVED INVISIBLE BIFOCAL.

Almer Coe, optician of Chicago, is about to place on the market an improved invisible bifocal lens in which the cementing of the pieces together with balsam has been done away with. It is not a one-piece bifocal, and therefore has not the very objectionable features common to the bifocal lens ground from a single piece of glass. Two pieces of glass (instead of three) are used which are, by the new process, made integral and inseparable. It has a disc of high-refracting flint glass set into the main lens of crown glass and secured so as to become a part thereof. It has the smooth and uniform surface of the plain lens. There is no cement to become loosened and blurred. It has no parts to crack or become separated; a broken lens must be replaced by a new one.

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Original Articles.

THE CARE OF THE EYES OF SCHOOL CHILDREN.

S. S. BISHOP, M.D.

HARRISBURG, PA.

The eye is an optical apparatus in the body—a camera composed of living tissue. The retina is to the eye what the sensitive plate is to the camera. It is the brain looking out upon the world to receive impressions. The nerves of the retina pass through the optic nerve to the brain, as the wires, from the switchboard in a telephone office, pass through a cable to the town.

The cornea, or the transparent part of the eye, which resembles a watch crystal, is to the retina what a window is to an individual in a room; the iris, much like a window shade, by regulating the size of the pupil, adjusts the eye for diffused or bright light, and when the lids are closed the retina is shut off from the world, as shutters close a room in darkness.

Immediately back of the pupil is the crystalline lens, a living sun glass, which brings light, entering the eye, to a focus. The lens is surrounded by a muscle, and when this circular muscle contracts it decreases the circumference of the lens, with a relative increase in its convexity according to the degree of muscle action.

A convex lens will bring light to a focus, and, as light coming from infinity, or from all objects beyond twenty feet from the eye, is in rays parallel to each other, the normal standard is based upon the construction of the eye being such that the rays are brought to a focus on the retina by the crystalline lens without the aid of the ciliary muscle.

Rays of light from near point are divergent, and, as all light must be focused on the retina to produce vision, relatively a stronger degree of refractive power is required for near vision, which condition is met by the action of the ciliary muscle on the crystalline lens, called the muscle of accommodation.

A normal eye is so constructed that all its functions as an organ of vision can be performed without violating the laws of sight or the laws which govern the system. Unlike the opera glass which is adjusted by a metallic screw, the eye is adjusted by muscles and their capacity for work must be respected.

Obviously an individual, with normal eyes, when looking at objects beyond a distance of twenty feet, or when gazing into space, is resting his ciliary muscles, just as the muscles of his arms rest when they hang by his side; and as he called the muscles of his arms into action to hold a book before him he calls the muscles of his eyes into action to read.

If the pupils' eyes are normal, with or without glasses, the teacher can rest them by diverting attention from books.

ABNORMAL EYES.

The eye is no exception to the rule of imperfection in nature. All men do not grow six feet tall, so all eyes are not the exact normal length. They may be shorter or longer, or they may be astigmatic or irregularly shaped. The majority are born with short eyes, requiring muscle adjustment of the lens for distant and near vision, and children having this defect enter school with their ciliary muscles already weary from work and in consequence become incapable of meeting the demands made upon them for continuous near work.

Like the general system, the eye is strengthened and developed by work, but, like a machine that is run when out of balance, so the eye, when used without respecting its muscle capacity for work, tension or muscle exhaustion will be the result, and unless the congenital defect is corrected by properly fitted glasses the child can not do his best work in school and may fail in adult life, especially if his work be of a clerical nature.

Binocular vision, or both eyes working together as one, is controlled by twelve external muscles, the balance of which is often broken by optical defects, but reciprocally muscular equilibrium is established as the logical sequence of their correction.

THE ADJUSTMENT OF GLASSES.

By the adjustment of glasses to the eyes the optical defects can be corrected and the eyes made normal. The eye being part of the body, the optical and medical can not be divorced, and the correction of its optical defects, as well as the treatment of its diseases, must be brought under the physician's skill, for the eye is in full sympathy with and sometimes its optical defects are the exciting cause of diseases. Consequently as much knowledge of the system is required to adjust glasses to the eyes as is required to treat a fracture by the aid of a splint.

The oculist or ophthalmologist is a trained physician who devotes his time to the treatment of the eye, including the correction of its optical defects. The optician makes and sells glasses, but when he attempts to adjust them to the eyes he does that which a druggist attempts when he presumes to treat pneumonia or reduce a fracture. The optician is to the oculist what the druggist is to the physician.

Tampering with the order of so delicate and important an organ—one so fearfully and wonderfully made—by commercial spectacle dealers, who could not be trusted to adjust properly a dead metallic optical apparatus, are to-day doing an injury to humanity that is not dreamed of by the public. The from-door-to-door spectacle vendor is not the only faker trading in spectacles and consequent suffering. The "Eye Sight Specialist," the "Optometerist," the "Optical Graduate," the "Ophthalmist," etc., are some of the terms skillfully selected on account of their professional sound, but have no professional meaning, and those using them, while *some* may be more ignorant than dishonest, are nevertheless carrying on entirely a commercial business, and consequently one which is a detriment to an unsuspecting public. The fact that weak, convex glasses will relax the muscles, and in many cases give temporary relief to the eyes, makes it possible for spectacle vendors to make a favorable impression for a time.

To measure the eye in order to adjust glasses so that the ciliary muscle will not be called into action for distant vision without controlling that muscle by atropia or some other drug, in other words attempting to adjust the defect when the muscle is in action, is just as absurd as to attempt to repair a watch while it is running. When the muscle is at rest it can be seen at once if the acuity of distant vision has been depending upon muscle effort, and if it has the defect can be remedied by spectacles. Glasses should never be prescribed by any one, even if the defect is measured, without taking the condition of eye and system into intelligent consideration. Children may outgrow some of their far-sightedness, the ciliary muscle may be exhausted or it may be enlarged from work like the blacksmith's arm; the near-sighted eye is in a process of stretching or the strain may be partly due to systemic causes, all of which facts must be taken into serious consideration when glasses are prescribed.

When glasses are adjusted, the ciliary muscle may resist them from force of habit, and glass and muscle correction combined will cause the patient to think he can see better without than with the glasses, but every time they are removed another struggle between muscle and glass will be required. Atropia does not affect the eye, but only the muscles, and is used as much to control and break up old abnormal muscle habits as for the purpose of measuring the defect. It is to the eye what a sling is to the arm, a blessing to be tried, or an irritable eye.

If the importance of correcting eye defects at an early age was more generally recognized by parents and teachers, we would hear much less of the harmful influences of our schools on the eyesight of children, and the number who pursue the course to the end would be materially increased.

Many parents, though interested in the welfare of their children in all other respects, neglect this most important duty or object to them wearing glasses on sentimental grounds, not appreciating the fact that a large number who are not up to the average in the class or who suffer from car sickness, weak indigestion, St. Vitus' dance, epilepsy, headache and physical breakdown, owe their ills to some eye defect. If a child attempted to take a book from a shelf too high for it to reach, a step would be supplied whereby he could reach it with ease; or if one foot was an inch shorter than the other, the defect would be remedied by adding extra leather to the sole. Then, why, if a child's vision is short, should there be an objection to supplying a step by which he can see? He is given a trowel to dig in the garden instead of being allowed to use his hands; should there, then, be an objection to providing a glass which will do the extra work—instead of the muscles of the eyes—thus favorably influencing physical and mental development?

THE EFFECTS OF EYESTRAIN.

The falling of water, drop by drop, upon the head of a victim, is said to be practiced by the Chinese as the most cruel form of inflicting capital punishment. The wretched victim goes mad in three days and expires in about a week. If this be true, it is not hard to realize that the brain and nervous system can be irritated and disease produced by the constant nagging at so delicately constructed an organism as the eye, compelling the muscles to work when out of balance and without intervals of rest. By holding the arm out at full length until it is compelled to drop from muscle exhaustion, one can gain a faint idea of the cruelties imposed upon children who are compelled to use the muscles of their eyes sixteen long hours daily without the power to relax. The body stretches out to take hold of material objects by the arm and hand, but the eye is the brain reaching out by the optic nerve and retina for vision. The bony orbit, having an open front, protects the eye and is the anteroom to the skull, within which the brain has its observatory. The retina, as part of the brain, is protected by the eye walls like a room with a glass front; it is also protected by the lids, as shutters, and the iris as an inside shade. With this protection the retina views the world with its telescope, the crystalline lens, which is adjusted by muscles.

The muscles of the arm manipulate bone, but the eye muscles are so related to the brain that eyestrain is muscle fatigue, also nervous exhaustion, and its persistence will result in untold ills to body and mind.

Disease is not an entity which takes possession of the system, requiring powerful drugs to remove it, but it is Nature gone wrong, a natural process perverted. To treat disease intelligently, the cause should be searched for and removed, and to do this the assistance of drugs is, of course, often required. The correction of refractive errors early in life will not only prevent disease, but by favorably influencing physical and mental development will side track inherited tendencies.

It is a well-proven fact that many nervous wrecks who are supposed to be invalids from inherited causes have inherited only defective eyes, which, like those of their parents, have not been corrected. The continued leak of nerve force from this cause and from the nightmare of the thought that sooner or later they will be compelled to surrender to the inevitable, so reduces the reserve force that, if called upon to go through a great strain, they collapse, when under other circumstances the trial may have strengthened them.

One of the most celebrated physicians of this country whose reputation as a neurologist is world wide gives the medical profession his own history as a victim of eyestrain in the following statement:

"Personally, I suffered thirty years from terrific headaches, frequent attacks of uncontrollable vomiting and extreme nervous debility at times. These attacks began in full severity when I was but 4 years of age. They persisted in spite of drugs until I found by accident that eyestrain was the exciting cause. Yet during all these years of acute suffering that terminated finally in complete physical collapse, when I was still a young man, I never had an eye symptom of which I was conscious and I had remarkably acute vision. The correction of my own eye defects restored me, as by magic, to health and a capacity for labor that I had never before known. My poor abused liver that had been stirred up by drugs for years to abort the paroxysms of pain must bless the day that revealed the actual cause. At different times in my life my headaches had been diagnosed as due to cerebral congestion, fermentation of food, insufficient bile secretion and many other speculative conditions, while the actual cause was discovered by myself almost by accident, and my life's work became an outgrowth of my recovery and restoration to health. Had I lived as a child in the present age of enlightenment I would have been spared weekly attacks of pain that frequently made suicide attractive to me, that robbed me of the ability to fill my engagements for nearly ten years (in the aggregate) out of thirty, that made me prematurely gray, and that in the end brought me to a condition of despair, without evidence of organic disease to account for my collapse."

This is but one of hundreds of similar cases on the records of the profession who are the class of unfortunates branded too often by church and state as degenerates and who drift from the want of proper physical help to periodical sprees, to the asylum or self-murder.

There are three results of eyestrain: The muscles may fag and produce poor vision. If the vigor of the eye structure is reduced, and the book constantly held too close to the eyes, the eye wall will stretch and produce near-sight; or it may result in irritation, a sense of fatigue of the eyes, a feeling as of sand in the eyes, pain in the temples, browache, peculiar or unnatural attitudes of the head, wrinkles of forehead or general headache. There are many headaches due indirectly to disorders of the accommodative apparatus of the eyes, in which the brain symptoms are often the most important and sometimes the sole effects of eye troubles, so that while there may be no pain or sense of fatigue in the eyes the strain with which they are used may be interpreted solely by occipital or frontal pain, pain on top of the head or along the spine; if this strain be long continued, it may be the unsuspected cause of peculiar sensations in the head, vertigo, nausea, dyspepsia, chorea, insomnia, epilepsy, hysteria, nervous prostration, insanity and general failure of health.

These are not high spun theories, but knowledge gained from enlightened experience. The relation between eye strain and nervous diseases, as cause and effect, is too well established to permit of any further discussion in the medical profession; but it can not be too widely disseminated among teachers and parents.

It was recognized as early as the beginning of the last century that the requirements of school life resulted in injury to the eyes of many of the pupils, and in the year 1800 A. G. Beer published a treatise on "Weak and Healthy Eyes," which gives much instruction to teachers.

From that time to the present investigations have been made at intervals. At the end of the century there were on record the results of the examination of the eyes of more than two hundred thousand school children; and the past five years it has been the rule to have the eyes examined of all the school children in the large cities, largely due to the untiring efforts of Dr. Frank Allport of Chicago.

The result of these examinations shows that many children who enter school in apparently good health soon begin to manifest impaired general vigor and near-sight, which was rare or entirely absent before the beginning of the school career, was found to progress with the progress of the scholars in the school.

In 1875 the Board of Public Education of Philadelphia proposed a series of questions to the teachers of that city, one of which was as follows: "How many children in your school are known to you to have weak or sore eyes, near-sight, or other defects of vision?" To which one teacher closed her reply with the following statement: "You will notice that at present, in the second division, only two pupils' eyes are affected; by the time that class is ready for promotion, as many as one-third of the whole number will be so suffering from weakness of vision as to occasion considerable maneuvering on my part to seat them in such positions as to enable them to copy from the blackboard."

Within the past year the following statement was made by an eminent German doctor, Myer, in a German medical journal: "The nervous diseases of school children is an interesting question from a point of view of one who has had exceptional opportunities to observe the frequency with which children are affected with nervous affections. Eighteen hundred and fifty-seven school children were so examined, with the result that one hundred and thirty were found to be nervous, which is 7 per cent., and out of a material of one thousand and sixty-eight that had never gone to school, 2.6 per cent. were nervous. The author believes that the chief cause of development of nervous diseases in school children is found in inherited tendencies to which the school acts as an active awakening to the congenital defect."

In America the per cent. is much higher. A statement has been published recently that out of the one hundred and sixty-two thousand school children in Philadelphia, eighty thousand were nervous or had eye trouble. Dr. Darlington, health commissioner of New York City, made the statement, within the past month, before the Academy of Medicine of Harrisburg, that 40 per cent. of the school children and 98 of the truant children of that city were physically defective.

THE TEACHER'S DUTY TO THE CHILD.

It does not fall within the province of the physician to sit in judgment upon the methods adopted by the teacher in the school; but when physical injury is likely to occur as a result of methods that are, or are not employed, the medical profession should insist upon the abandonment, or adoption of methods which will prevent injurious effects of school life.

For when we consider that the destiny of this nation will be committed to those who are now in its schools; that a happy and useful life, and a peaceful senescence depends upon the health of the individual, it is obviously important that every effort should be put forth, to prevent physical degeneracy, and, as far as possible, side track inherited tendencies during the years of physiological growth, which are the years of school life. A child should not be allowed to drift down the stream of life to physical inefficiency, but the teacher should come to his rescue in any moral, mental or physical defect which has been acquired or inherited, by piloting him up stream to the hills wherein lie the hidden treasures of physical strength.

Education does not consist simply in the acquisition of knowledge. The great idea underlying all instruction should be to fit and stimulate the scholar, according to his individual ability; this of course requires teachers of intelligence and discernment, to whom their calling is not merely a routine business; many who are well qualified for the moral and mental training of children accept the important responsibility with no knowledge of physical condition; or whether a child is physically equal to the requirements of school life. The teacher should see that the book is held at a proper distance, in a good light, and a study of facial expression and head posture be made. He should familiarize himself with symptoms of eye, ear, nose and throat defects, so that, while he can not make a diagnosis, he *can* know when there is something wrong. Subjective observations of physical defects are much more practical and trustworthy than a few stilted questions concerning objective conditions; therefore the teacher, who is in constant touch with the development of the child, can make the manifest examination much better than an occulist detailed to the school for that purpose, and whose examination must necessarily be made while the child is more or less under the influence of nervous fright.

Children should never be condemned or discouraged on account of any weakness, but should be encouraged by an extra effort being put forth to strengthen weak points. Much depends upon the way a child is started. It may be thought he has no turn for mathematics, when the sole trouble is that he does not see the figures correctly; some children with astigmatism can not distinguish 3 from 5, 6 from 8 or 9, and consequently never have the correct answer to an example. A philosophic and intelligent dealing with this condition would prevent many from selecting a vocation in life which is distasteful, and which was chosen by them from supposed necessity; from this cause the shore of life is strewn with wrecks.

In 1881 a publication appeared on "Weak Eyes in the Public Schools of Philadelphia," by S. D. Risley of that city. In 1893, twelve years later, Dr. Risley inquired of the supervising principal of the Francis M. Drexel School about the condition of the eyes of the thirteen hundred children under her care. She replied as follows: "We have much less difficulty in that respect than formerly. Almost daily some child is sent to me complaining of his eyes. In all such cases I send them home with a note requesting their parents to have their eyes examined. We miss them from the class for a few days, when they return with a pair of spectacles, and we hear no more complaint."

It is not enough, however, when dealing with children to simply adjust glasses suitable for the correction of the error of refraction, for while the eye is strained, and disease produced as the result of optical defects, the eye trouble may be due, in part, or entirely to enervation of the eye muscles from constitutional causes. Many children are either under or over fed, or are allowed to eat candy in excess; others live in insanitary houses, or are victims of unwholesome habits. Some are ambitious and pour over books in the evening, often in a badly ventilated room and with a poor light, or rush to school in the morning without breakfast, and in consequence are not able to stand the strain of school life. In nearly every one of these cases an error of refraction exists, but in many it is so slight that in all probability, were the habits correct, the eyes would give no trouble, and under these circumstances the relief afforded by glasses only encourages the child to struggle on to a more serious breakdown. This is nothing less than the removal of nature's red flag of warning. Glasses should never be prescribed without taking the physical condition into serious consideration.

In a conversation with Dr. Berry of Edinburgh upon this subject, he remarked that the simple natural life of the people of Scotland made it unnecessary to prescribe glasses so generally, and added, however, in strenuous America, with your habits of rush and hurry in every department of life, and the consequent wear and tear upon the nervous system, the use of glasses to relieve strain may be an imperative need.

From twenty-one years' experience in the medical profession, twelve of which have been devoted to the eye, I am convinced that if our school curriculum was reduced, or made more elastic, or the school work made partly industrial, it would be much better for our country.

When a child enters school an estimate of his general strength should be made, for it is most important to remember that though the demand made by work, upon the muscles of the eye, may not be unreasonably great in itself, yet it may be altogether excessive in relation to the individual to whom it is made. Many children enter school in more or less enfeebled health, and their work must be adjusted accordingly, or they will be condemned to the stern law of the survival of the fittest. Children having sore or inflamed eyes should not be allowed to enter school without a certificate from a physician to the effect that the disease is non-infectious. Unless the child has a certificate stating he is under the care, or has been treated by a competent oculist, the acuity of vision should be taken by the teacher when he enters school, or at any time when there is suspicion of something being wrong. For the purpose of testing the acuity of vision, a test card should be in every room; the child seated twenty feet from the card, and each eye tested separately, by holding a small card over one eye. If the twenty foot line can not be read at twenty feet by both eyes an oculist should be consulted, as near-sight is in all probability developing. If the twenty foot line is read by both eyes, they may, and they may not, be normal; the acuity of vision may be abnormally maintained by muscle adjustment, which will sooner or later result in eye strain.

If the fifteen-foot line is read at twenty feet, in my experience it has indicated an alert active brain and retina; but if the ten foot line is read at twenty feet the family physician should be consulted, as the retina is irritated, and very probably from constitutional disturbances.

A child should be encouraged to form regular habits. The world does not depend upon the genius; nor should the prodigy in the class, who studies at the expense of his health for the popular applause, be set upon a pinnacle as an example for other pupils.

Regularity of habit, work well done, promptness, should be the standard, and if a child falls behind, lacks ambition, is listless, drowsy, has symptoms of eye strain, or manifests any nervous symptoms, his parents should be urged to have him intelligently looked after and treated.

Parents invariably feel grateful when interest in their children is manifested. I never knew one to object to, or resent an approach of this kind, unless it was done in a spirit of fault-finding, or pointing out defects in a way which savored of criticism, ridicule or condemnation. Careful observation, intelligent care and treatment, will amply repay the teacher, not only by the increased learning capacity of the pupil, resulting in much less tax on the teacher's own time, patience and endurance, but he can enjoy the far greater reward of knowing he has helped to properly equip children for useful life work.

THE EFFECTS OF PROLONGED LACTATION UPON THE EYE,

WITH ESPECIAL REFERENCE TO RETRO-BULBAR NEURITIS, AND THE REPORT OF A CASE.

H. MOULTON, M.D.

FORT SMITH, ARK.

The effects of prolonged lactation on the eye are properly the effects of anemia and toxemia. The exhaustion and anemia are promoted by the flow of milk, care and anxiety, loss of sleep, lack of exercise and fresh air. General derangements of all the functions follow. Food is imperfectly assimilated; waste products are imperfectly eliminated. Toxemia results. To the general weakness the milder and functional eye troubles are, for the most part, due. To toxemia and accidental causes the more serious are due. Most prominent among the former is asthenopia. This may be confined to the retina, which is easily exhausted from poor blood supply to itself or the brain. Near work is impossible or difficult from fatigue. We may have concentric narrowing of the fields of vision, blindness, paroxysmal loss of vision, especially preceding attacks of syncope (Knies). Most troublesome, however, is the asthenopia from errors of refraction or muscular imbalance; errors which in health may not have caused trouble, but which in an exhausted general state can not be overcome by the enfeebled accommodative power. In many such cases properly adjusted glasses will relieve the eyestrain and headaches. A load is lifted from the weakened nervous system, and thus general recovery promoted.

In anemia the conjunctiva may be pale, as are the other tissues, but a striking fact is the great frequency of congestion of the conjunctiva from anemias of all kinds. This is spoken of as dry catarrh. Probably loss of sleep and insomnia are factors in its production (Knies). Another symptom frequently noticed is edema of the lids. Jackson notes the occurrence of very painful corneal ulcers. Haab speaks of the same ulcers from slight abrasions, which in health are scarcely noticeable and quickly healed. Knies remarks: "Phlyctenular conjunctivitis and keratitis are more common in nursing than in non-nursing women." Conjunctival hemorrhages and degeneration of the muscles are also noticed.

Functional disorders from anemia must be distinguished from those that are purely hysterical in otherwise healthy women.

Of the more serious lesions, Jackson describes blindness in nursing women from anemia of the retina and consequent optic-nerve atrophy. This result occurs only in cases approaching pernicious anemia in severity of symptoms. Anemia of the retina is hard to make out ophthalmoscopically owing to variations in vessel caliber and pigmentation in healthy fundi; but marked pallor of the retina and optic disc sometimes occur, with only temporary impairment of function. Most authors describe hemorrhages into the retína in severe anemia due to weakened vessels and vitiated blood. Neuritis, atrophy and retrobulbar neuritis are described in this connection by Knies and Haab as probably toxic. This toxic phase of the subject is well illustrated by the following case of retrobulbar neuritis:

Mrs. F., aged 25 years, pale and anemic, nursing a 14-months-old babe, came Jan. 19, 1901. About Dec. 25, 1900, she says, her left eyeball began to be sensitive to movement and pressure and sight began to fail at the same time. For a day or two previous to her visit the same painful sensation had been present in her right eye. With this eye she could see very well, but to use her words, "The atmosphere is visible and wavy." Examination showed externally normal eyes.

Vision R. E. 15/20; L. E. movement of hand. Fields: R. E. central relative scotoma from fixation point to beyond Mariotte's blind spot; i. e., red and green were not perceived, while form was perceived in this area. L. E. central scotoma, relative, for forty or fifty degrees, but absolute over an area of twenty degrees around the fixation point. Outer limits normal for both eyes.

Ophthalmoscope.—R. E. normal fundus and clear nerve head, except a strikingly enormous distention of the veins, apparently due to obstruction. L. E. arteries very small; veins slightly enlarged; papilla grayish-pink, especially to the temporal side; entrance of vessels hidden and outlines of disc lost.

The subsequent history was that in a week the right eye was blind. But soon both eyes began to improve, and February 14 vision R. E. 6/200 with a central absolute scotoma; vision L. E. 15/40 with only a small relative scotoma. There were never any other ophthalmoscopic signs in the right eye, even when it was blind, than the swollen veins. There was no papillitis or retinitis. The papillitis of the left eye gradually cleared away. March 5 the patient, who had returned to her home, wrote that recovery was nearly perfect, except a small spot "in front of her eye" (scotoma). In May, 1903, V. R. E. = 15/18; L. E. = 15/18.

Pathology.—The swollen veins and central scotoma, the pain on pressure and movement, and in the right eye these symptoms without visible neuritis, all render complete the picture of the retrobulbar neuritis.

In searching for a cause, syphilis and rheumatism and exposure to cold were eliminated as some of the common causes of retrobulbar neuritis. Examination of the urine for albumin and sugar was negative. There was no history of the ingestion of extraneous toxic substances likely to produce retrobulbar neuritis. As an acute retrobulbar neuritis is unanimously, so far as I know, attributed by authorities to toxemic causes, we were by exclusion led to accept in this case autointoxication. In severe anemia a toxic condition of the blood is probably always present, favored by malelimination as well as by malnutrition. However, the actual toxic changes going on in the blood are rather surmised than known.

In this case we had severe anemia, extreme pallor, waxy skin, mallaise, nervous exhaustion and constipation. Preceding and accompanying these was the prolonged lactation, which, I think, may be justly considered the primary cause. Treatment based on this assumption resulted, in three months, in a restoration of general and ocular health. The essentials were weaning the baby, calomel, iron and bitter tonics. This is one of the severe forms of eye trouble, but fortunately not one of the worst which may be attributed to prolonged lactation.

Blindness from atrophy I have not seen, but I have confidence in the authors who report it. These severe disorders are rare, but need careful interpretation when met with. Recently I saw a case of neuro-retinitis, with scotoma in both eyes, in a mother who was nursing a child older than 1 year. In this case there were slight retinal hemorrhages and minute white plaques near the macula, characteristic of albuminuria or diabetes. Urinalysis revealed abundant sugar. Clearly in this case diabetes was the most probable etiologic factor. I mention this case to show the necessity of minute care to avoid grave error in diagnosis. Every eye trouble in a nursing mother may not be attributed to prolonged lactation. So also of the milder affections previously enumerated. Some of them may be accidental; yet they are numerous enough to be considered among the unfortunate consequences of prolonged lactation among fond, though misguided, nursing mothers.

CAVERNOUS ANGIOMA OF THE EYELID.*

S. D. Risley, M.D.

PHILADELPHIA.

The following history of a case of angioma of the eyelid is regarded as of sufficient interest for publication because of the tender age of the patient, the rapid growth to an unusual size of the tumor. and the procedure adopted for its removal:

The child was brought to the Wills Eye Hospital for treatment when 11 weeks old, referred to the writer by Dr. Lewis H. Taylor of Wilkesbarre, Pa. There was a dark red, purplish, chestnut-like tumor upon the right lower eyelid, its upper border skirting the ciliary margin of the lid. Beginning near the outer canthus it occupied about three-fourths of the entire length of the lid. It measured two and a half centimeters in its horizontal diameter, two centimeters vertically and presented an elevation of about one and one-half centimeters. The base of the mass was somewhat smaller than the dimensions, but was overhung by the projecting rounded borders. The tumor was soft and fluctuating, but grew tense when the child cried so that bursting of the much-thinned pellicle of enveloping skin seemed imminent. The mother related that she had noted, a few days after the birth of the child, a small red line near the lid border; that in a week it was noticeably larger and more prominent and that it had continued to enlarge steadily and with increasing rapidity.

In all other respects the infant was well formed and healthy. The problem of relief presented difficulties. To excise the growth without removing the greater part of the eyelid involved the possibility of profuse hemorrhage, a serious matter in so young a patient. To remove the lid was to cause great deformity. Coagulation of its contents by styptic injections or by injections of hot water suggested the possibility of a coagulum being carried by the distended veins to the cavernous sinus or deeper, since the tumor was situated in the danger zone for this occurrence.

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* Presented at Ophthalmic Section of the College of Physicians of Philadelphia, Feb. 20, 1906.

The procedure which was finally adopted was as follows: A single electrolytic needle was inserted at many points into the base of the tumor, at first superficially, and gradually made to penetrate its mass more deeply, but only in its deeper portion, in order to secure a firm coagulum, first in the region of the emerging vessels at its periphery and then over the entire base. Under the electrolysis the entire mass became hard, lost its fluctuating quality and shrank. The surface was then covered with a thick coat of collodion. In forty-eight hours the rounded, overhanging borders had disappeared, the surface was corrugated and much flattened. In a week the electrolysis was repeated, and later with multiple needles three times at intervals of a week or ten days, but without any marked improvement beyond that secured by the first attempt. The tumor remained hard and quite dense at the center, but showed an unmistakable tendency to spread laterally and it became obvious that some more radical procedure was required if a cure was to be effected. Deep electrolysis was again repeated and the following day an Ericson's suture was introduced. A large curved needle with an ample eye was threaded with one black and one white, heavy silk thread a yard long. Beginning at the nasal extremity of the tumor the suture was carried vertically upward through it, being careful to include the mass down to the surface of the lid cartilage, but not including it. Then reversing the procedure the thread was carried through the mass downward at a point 5 mm. from the first, and so back and forth until the entire tumor was enclosed in a series of loops, above and below. The extremity of the loops of white thread were then cut above, leaving them intact below. They were then drawn tightly home and tied. The black loops were then cut below and in a like manner brought firmly home and tied, in this manner effecting a complete strangulation of the entire mass, which sloughed off in about a week without hemorrhage, leaving a granulation mass at each extremity. These were also removed by strangulation with a silk thread, after which the surface cicatrized rapidly, manifesting but little tendency to cause ectropion.

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Editorials.

THE INNER-POLE MAGNET.

Since the introduction of Haab's giant magnet the numerous other models which have been proposed have, until recently, been merely modifications of the original for the purpose of increasing the strength of the instrument with relation to its weight, or to produce greater ease in manipulation. The "inner-pole magnet" now described by Jurnitschek,[1] first mentioned at the Lucerne Congress, 1904, introduces to the ophthalmologist an entirely new principle. Its action depends on the fact that the greatest magnetic power, with a given current, is developed within the solenoid, or electric coil, at its geometrical centre. It follows that all magnets whose active poles project beyond this circle act at a relative disadvantage, and if the length of the projecting part of the core is reduced to overcome this advantage, as far as possible, the difficulty of observing the eye during the action of the magnet is correspondingly increased. The new magnet consists of a large solenoid with an opening such that the whole face of the patient can be placed within it, and still allow a good view and illumination of the eyes from the opposite opening of the coil; also two or more soft iron cores varying in size and shape from that of a thick lead pencil to a large horn-shaped piece of several pounds weight. With the patient's face within the coil any piece of steel in the eye, as well as the entirely separate core which the operator manipulates, becomes intensely magnetic; and in all but one of the twenty cases in which the method has been tried (including thirteen in which the steel was within the eyeball) the foreign body has been removed, or at least drawn into the anterior chamber, with one of the small cores held and manipulated like a pencil. In the unsuccessful case even the large horn had no effect, the steel being stuck tight in the ciliary body.

Aside from the greater efficiency of the current employed, the advantages of this form of magnet are the greater freedom of manipulation and the much clearer view of the eye which the method permits; and these advantages are so obvious that the reviewer is tempted to predict that it will be the magnet of the future. The idea of the inner-pole magnet originated with Prof. Hagenbach-Bischoff of the Institute of Physics at Basel. The details of the instrument have been worked out by the Electrician Klingelfuss and in the Basel Eye-clinic of Prof. Mellinger.

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[1] Zeitschrift f. Augenh., November-December, 1905.

The case in which the magnet failed and the eye had to be enucleated well illustrates the weakness of all systems by which the magnet is applied to the exterior of the eye without the operator being able to see what course the steel will take in coming out. The sharp pointed bit of metal probably lay at first free in the anterior part of the vitreous, but the first application of the magnet drew the point so deeply into the sclera that the only possible way to extract it would have been to go into the vitreous with the small magnet.

If this had been done at first there is little doubt that the eye could have been saved. To the reviewer, by the way, it is not apparent why an intra-ocular tip would not work as well with the inner-pole magnet as the extra-ocular ones seem to do. G.

THE SOCIETY ERA.

This is an era of society organization. The "butcher and baker and candle-stick maker" have organized and are found working to advance their mutual interests. Money, science and labor, each is endeavoring through social organization to improve its respective field of operation. Never in the history of the world has there been evidence of such extended and diversified effort for united improvement as at present obtains in society organization.

It is possible that physicians have furnished through this many societies a successful example which has stimulated other scientific bodies to emulation. It is true also that our easy means of travel make it possible to meet in annual convention, and there learn something, spend something and have a good time.

We have in the American Medical Association the most perfect scientific organization in operation to-day. This means much, for it means that its like has never been attempted in the past. The secretary of the American Medical Association is, through the secretaries of the state societies, in touch with every county society in the land. All are working in unison, not for political purposes, not for pecuniary gain, but for the advancement of knowledge in the broad field of medicine. There probably is no other organization to-day which is laboring so unselfishly for the good of mankind. The close relation of national, state and county societies is productive of more even than this. The scoffer of medical societies, the man who "goes it alone," now finds he is making a mistake. He can not afford to be outside the progressive, broadening, scientific organization which is sweeping every 'ism before it into the oblivion of the past.

The jealousies and bickerings of country practitioners have done much to lower their positions as scientific men in the eyes of their fellow-townsmen. The local society has served to bring these men together and to make them acquainted. Before this they scarcely knew each other. The other fellow generally improves upon acquaintance. Once friendly relations are established, backbiting ceases.

A little interest in the local society soon grows into a desire to attend the annual meetings of the state society. The man grows, he attends the national association and grows still more. From an unheard of obscurity he develops a desire to make a name for himself. Healthy competition has lifted this man out of a rut. A man can not lift himself by his own boot-straps, but give him a little assistance on either side and the result is different.

Such an organization as ours has made it possible for the once obscure country practitioner to stand as a peer of his city brother, whom he once regarded as vastly his superior. It was only a few years ago that it was thought that to have a "reputation" a man must be located in some large "medical center." This is not true to-day. Hundreds of men who live in obscure villages occupy positions in the American Medical Association which are far from obscure.

Such is the value of organization. Every earnest, true worker is afforded an opportunity to show his worth.

MELVILLE BLACK.

EXAMINATION OF SCHOOL CHILDREN'S EYES AND EARS.

The annual and systematic examination of school children's eyes and ears, etc., by school teachers is no longer an experiment. It is an accepted fact, and is now being generally adopted throughout the United States. The plan is not only being used authoritatively in different states under state and city authority, but is used in hundreds and thousands of cities and towns through the individual effort and interest of school teachers and local physicians. The plan is so simple that the only wonder is that it is not universally adopted. There can be no question but that a few significant and pregnant questions propounded by intelligent school teachers is sufficient to discover a vast majority of all serious diseases of the eye. ear, nose and throat. No teacher needs a medical education to perform this simple duty, neither is she supposed to attempt to make a diagnosis. She simply asks the questions and if the child is found defective a card of warning is handed to the child, which is given to the parent. The plan is simple, easy, cheap and practical. It does not deflect professional business to anybody in particular. The parent is at perfect liberty to take the child to any physician he may select. This method, of course, does away with all suspicion of "pull" or preference and can not produce professional discord. It is to be hoped that the plan will be adopted in every state, city, town and hamlet in the United States. Almost every State Medical Society has warmly endorsed the plan, as has also a majority of the State Boards of Health. A great many of the State Boards of Education have also taken the matter up and it is gratifying to know that the plan is becoming a state law in several of our commonwealths. It is already a law in Connecticut and Vermont, and it will, undoubtedly, become a law before the winter is over in the states of Massachusetts and Ohio. and a number of other states. All it requires is the combined action of the medical profession of each state, whose expressed wishes concerning a reasonable matter of this kind will not be ignored by the members of the different legislatures.

Why not follow the example of the states already mentioned and see that a law is passed in every state in this country. It can be done. In order that the readers of the RECORD may know the wording of the Connecticut and Vermont laws, the writer herewith copies them, begging to state, however, that in his opinion the Vermont law is the better of the two.

THE CONNECTICUT LAW.

Section 1. The State Board of Education shall prepare or cause to be prepared suitable test cards and blanks to be used in testing the eyesight of the pupils in public schools and shall furnish the same, with all necessary instructions for their use, free of expense to every school in the state.

Section 2. The superintendent, principal or teacher in every school, sometime during the Fall term in each year, shall test the eyesight of all pupils under his charge, according to the instructions furnished as above provided and shall notify in writing the parent or guardian of every pupil who shall be found to have any defect of vision or disease of the eyes, with a brief statement of such defect or disease, and shall make a written report of all such cases to the State Board of Education.

THE VERMONT LAW.

Section 1. The State Board of Health and the superintendent of education shall prepare, or cause to be prepared, suitable test cards, blanks, record books and other needful appliances to be used in testing the sight and hearing of pupils in public schools, and necessary instructions for their use; and the superintendent of education shall furnish the same free of expense to every school in the state. The superintendent, principal, or teacher in every school during the month of September in each year shall test the sight and hearing of all pupils under his charge, and keep a record of such examinations according to the instructions furnished and shall notify in writing the parent or guardian of every pupil who shall be found to have any defect of vision or hearing, or disease of eyes or ears, with a brief statement of such defect or disease and shall make a written report of all such examinations to the superintendent of education as he may require.

Section 2. The state auditor is hereby directed to draw his order on the state treasurer for such sums and at such times as the superintendent of education, with the approval of the State Board of Health, may require to carry out the provisions of this act. The total expense under this act shall not exceed six hundred ($600.00) dollars in any biannual term ending June 30.

Section 3. This act shall take effect July 1, 1905.

The writer begs to state that the projected Ohio law will probably be a close copy of the Vermont law. A bill is now before the legislature in Massachusetts to provide for protecting the health of children in public schools. Sections 1 and 2 refer more particularly to medical examinations, contagious diseases, etc., but sections 3, 4, 5 and 6 refer to the regular examination of school children's eyes and ears, and is herewith copied for the benefit of the readers of the Record.

THE MASSACHUSETTS BILL.

Section 3. The school committee of every city and town shall cause every child in the public schools to be separately and carefully tested and examined at least once in every school year so as to ascertain whether he is suffering from defective sight or hearing or from any other disability or defect tending to prevent his receiving the full benefit of his school work, or requiring a modification of the school work in order to prevent injury to the child or to secure the best educational results. The tests of sight and hearing shall be made by teachers. The committee shall cause notice of any defect or disability requiring treatment to be sent to the parent or guardian of the child, and shall require a physicial record of each child to be kept in such form as the State Board of Education shall prescribe.

Section 4. The school committee may employ such nurses or other persons as it deems necessary and desirable to supplement and follow up the precautions required by this act.

Section 5. The State Board of Education shall, after consultation with the State Board of Health, prescribe and furnish to school committees suitable rules of instruction, test cards, blanks, record books and other useful appliances for carrying out the purposes of this act, and shall provide for pupils in the normal schools instructions and practice in the best methods of testing the sight and hearing of children. The Board of Education may expend during the year nineteen hundred and six a sum not greater than three thousand dollars, and annually thereafter a sum not greater than one thousand dollars for the purpose of supplying the material required by this act.

Section 6. This act shall take effect on the first day of September in the year nineteen hundred and six.

FRANK ALLPORT.

Correspondence.

ARGYROL.

To the Editors:—We are writing you at the suggestion of one of the prominent ophthalmologists of this city in reference to a recent discussion at the College of Physicians and Surgeons on the subject of argyrol, which discussion, we understand, will be published in your journal.

At the meeting above referred to some of the men complained that they were not able to obtain the same good results with argyrol solutions as they were formerly and were inclined to attribute this to a change in the drug itself; this latter, however, is not the case, as argyrol is exactly the same to-day as it was when we first put it on the market. The whole trouble lies with the druggists in that they make up large quantities of the stock solution of argyrol from which they fill prescriptions as they come in. This, however, is a grave mistake for many reasons, not the least of which is that argyrol solutions more than two weeks old should not be used, whereas by the druggists' present methods the physician is liable to get a solution many months old. This difficulty may be easily avoided by specifying on each prescription the words *"freshly prepared,"* and in case of clinic have the attending surgeon see that his argyrol solutions are renewed at least once every two weeks.

We trust that you will publish the data as above given, not for the purpose of advertising argyrol, but to correct an abuse of a valuable drug. Yours truly, BARNES & HILLE.

Philadelphia.

Reviews.

INJURY TO THE EYES AFTER PARAFFIN INJECTIONS FOR SADDLE-NOSE.

By William Uhthoff, Breslau.

[Reviewed by Frank E. Brawley, M.D.]

Professor Uhthoff gave his experience with the paraffin injection methods. In one case, a woman of 45 years of age, an injury received during her seventh year was given as the cause of the saddle-nose deformity. A large vessel was supposed to have fallen on the bridge of the nose. An examination of the eyes showed evidence of an old iritis on the right side and the fundus on both sides showed old peripheral chorio-retinitic changes. The nose showed ozena with a large perforation, involving both the cartilaginous and the bony septum, and there was a history of an abortion, making a specific history probable. There was a history of rheumatism of fifteen years' standing. No history or evidence of any heart lesion. There were three injections of paraffin (melting point 43° C. and injected at a temperature of 46° C.) made at intervals of eight and six months to repair the deformity. At the third injection, when one-third of a gram was injected the patient suddenly noticed that she was blind in her left eye, and she discovered this at once because, during the injection, her physician had the right eye covered with his hand. There was lacrimation, no pain, and there was slight vertigo while the patient was on her way home. On the next day the left eye was much swollen, but showed no fundus changes, according to the physician who examined the case at that time. When seen by Professor Uhthoff, however, there existed the typical picture of embolism of the arteria centralis retinæ, with characteristic hazy retina about the papilla and macular region and the red spot at the fovea. L. V. = 0. When examined later, narrowing of the retinal arteries and veins was discovered with atrophic pallor of the disc. Treatment was of no avail.

Professor Uhthoff's conclusions were that in spite of the relatively low melting point a small particle of paraffin found its way into the central artery of the retina. It must have passed through the circulation of the lungs in fluid form before reaching the eye, although such cases must be exceedingly rare.

A similar case was reported by Hurd and Holden in the *New York Medical Record*, ii, vii, 1903. Hurd and Holden explained their case by assuming a persistent foramen ovale between the auricles, which allowed the paraffin to reach the arteries without passing through the lungs. Uhthoff does not place much confidence in this idea, however. He was unable clinically to find any pathologic heart changes in his case.

Elschnig, in discussing the above case, suggested that the paraffin may have been injected directly into a peripheral branch of the ophthalmic artery and was forced inward against the blood stream to the point where the artery centralis retinæ is given off and so entered this artery. This theory Uhthoff also finds objectionable, as the branches of the ophthalmic artery in the region of the bridge of the nose are very small and it would be impossible to enter one of these branches with the relatively thick canula used.

Leiser (*Deutsche med. Woch.*, No. 14, 1902) reported a case of sudden blindness in one eye after the third injection of paraffin in a saddle-nose. Here the blindness came on with collapse and persistent vomiting. On the following day the eyelids were swollen, there was limitation of motion of the globe, and later atrophic changes in the papilla and hemorrhages in the neighborhood of the iris and cloudiness of the aqueous. When first seen the papilla was normal in color, but the neighboring retina was cloudy. Later the papilla became red and hazy, but soon began to show the pallor of atrophy, and a whitish retinal exudate appeared at the inner lower border of the papilla in the area of a retinal vein. Leiser considered the condition to be a thrombosis of the central retinal vein.

After quoting the work of many others, Uhthoff decided that hard paraffin, that is, with a melting point of at least 50° C., offered the best chances of success with the least danger. Cases of embolism have been reported, however, even with hard paraffin. He advises the injection of hard paraffin in solid form by means of a syringe fitted with a screw for gradually forcing out a thread of the solid paraffin. The syringe should be first filled by drawing into it the liquid paraffin, which is then allowed to cool and harden.

Another case, a man of 57 years of age, received a saddle-nose from being kicked in the face. He received three injections of paraffin, supposed to be soft, but the melting point and the details of the treatment were unknown. A year later the result seemed satisfactory. But just at this time on a comparatively warm day, after severe labor in the garden, which caused him to perspire freely, he suddenly noticed itching and pressure in both eyes. This caused him to rub his eyelids, which began to swell, until finally, in a few hours, the neighboring parts were also involved in the inflammation. Next day he could not open his eyes and his physician diagnosed the condition as erysipelas.

A small piece of the lid swelling was excised and examined, showing inflammatory changes from the paraffin. Uhthoff's article showed a graphic picture of the paraffin tumors and another taken after their removal. The operation consisted in making curved incisions in the skin of the lids and carefully dissecting out as much as possible of the thickened tissue and masses of paraffin in several sittings. There were close adhesions everywhere, even to the bony orbital wall.

Microscopically the tissues presented a network of connective and inflammatory tissue filled in places with paraffin in fine drops. After describing the exact microscopical appearance of the excised tissue, Uhthoff concludes that occasional bad results as here described do not mean that paraffin injection is to be avoided in suitable cases, but that great precautions should be taken in choosing the cases and making the injections. The amount injected should be small at each sitting, the intervals between injections should be long, the neighboring vessels should be compressed during the injection, the paraffin should have a high melting point and the injection of the paraffin centripetally into the larger veins should be avoided. **Brawley.**

Reports of Societies.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting Dec. 14, 1905.

Dr. J. E. Colburn, President, in the Chair.

VOLUNTARY DIVERGENCE.

Dr. Mortimer Frank exhibited a girl, aged 14, who has had nystagmus and at times voluntary divergence ever since she was a baby. The family history is negative, except that an aunt of the patient had strabismus. The patient complains of nothing, except that vision is low. Without glasses vision in the right eye is 6/30 and in the left eye 6/22. With correction, the right eye, minus 1, plus 450, axis 90, is 6/9 + and the left eye, minus 1, plus 425, axis 90, is 6/9 +. With Snellen's color types and prism tests and pencil tests she has monocular vision, but when she turns the other eye out she has binocular vision.

PECULIAR LENS REFLEX IN INCIPIENT CATARACT.

Dr. C. H. Beard presented a patient, 29 years of age, with a peculiar punctate cataract. The dots have a decidedly blue tint, but they do not have the appearance of crystals. They appear to be globular. The patient was perfectly well until about five years ago, when he had an attack of gonorrhea, which was followed shortly afterward by what was called an abscess of the lung. The only evidence of the abscess was that the man spat up a great quantity of mucopurulent material. His vision began to fail shortly after the abscess formed.

Two years ago the amblyopia was very marked and it increased gradually until he was unable to see at all. When he was first seen by Dr. Beard, about two weeks ago, he had practically no vision. Nothing was done, but the vision suddenly improved and the patient can now count fingers. Vision in the right eye is 20/100 and in the left 20/70. His occupation was that of a car cleaner, but there is no definite history of his having used some substance which might have caused poisoning. All the symptoms, however, point to a toxemic affection of the lens.

The singular feature of the case, he thought, is the blue bodies which can be seen only with the strongest illumination and the sharpest focusing. The retinal veins can be seen fairly well, but not so the arteries. The discs have a flossy look, like the discs of alcoholic poisoning. There is no marked tortuosity of the veins, and no changes are visible in the retina and chorioid, except those mentioned. Dr. Beard thought it is a very rare form of degeneration of the lens.

Discussion.—Dr. E. F. Snydacker thought that the case is one of cataracta punctata cerulea, a congenital condition. He has a section of such a condition, but it does not show any color, merely a number of widely scattered punctate opacities. He can not say whether they are fat globules or crystalline concrements. However the condition, he believed, is one described by Becker and illustrated in his works as a form of cataract.

EXENTERATION OF ORBIT FOR MALIGNANT TUMOR.

Dr. Snydacker's patient had been operated on a number of years ago for glaucoma in both eyes. The one eye was operated on successfully, with the preservation of a fair degree of vision remaining. The other eye became blind and as hard as a stone. It also became exceedingly painful. After several years the patient noticed that the eye was bulging out or forward and the pain had also become more intense. When first seen by Dr. Snydacker the cornea was absolutely hazy; the media were opaque, and the eye was bulging down and outward from the orbit. It was intensely congested. Nothing pathologic having been found in the nose, a diagnosis was made of probable tumor of the orbit, and enucleation, with possible exenteration, was advised.

The patient was operated on last May. After enucleating the eyeball a tumor mass was found which had pushed through and around the optic nerve, filling the orbit. An exenteration was decided on. The lids were laid open at the inner and outer canthus and a dissection was made well back from the orbital edge, dissecting out the periosteum and also the lachrymal sac. The mucous membrane was dissected off carefully from the lids and everything in the orbit made clean. The lids were then pushed back as far as possible into the orbit and tightly packed. The packing was left in place for two weeks.

A microscopic examination of the tumor disclosed a sparsely pigmented sarcoma of the chorioid which had penetrated the eyeball. The patient is now in excellent health and thus far there has been no evidence of a recurrence of the tumor.

A second, a man, aged 72 years, presented itself with a very large tumor, one which almost completely covered the eyeball, involving particularly the lower lid. It was intensely painful and secreted profusely. An exenteration was done, but on attempting to peel back the periosteum it was found immensely thickened and the underlying bone rough. An incision was made around the thickened portion, which was raised, and the bone chiseled off entirely. Both lids were removed with the expectation of remedying the defect later with Thiersch grafts. The patient did well for about three months, when he died of an intercurrent pneumonia. The tumor in this case was an adenocarcinoma. The patient had also been under *x*-ray treatment for about five months, but without any influence on the growth of the tumor.

A third case, a woman, was one of extensive lupus of the face, nose and eyelids. The cornea was completely destroyed and covered by a granulating mass, and the conjunctiva was badly involved. She had had the disease for about fifteen years and had been under *x*-ray treatment for several months. The lesions on the cheek and nose were healing nicely, but the eye lesion was not affected. Finally her condition became a very serious one. The bone necrosed and there was much sloughing of the soft tissues. An operation was decided on. Both lids were removed and the orbit was exenterated. The side of the nose was covered with a flap taken from the cheek, and Thiersch grafts were relied on to cover the remaining defect. The lachrymal sac was not removed. The patient did very well. The nose healed completely and the orbit granulated nicely. Thiersch grafts were laid on the eyelid as fast as they healed. If one place did not do well, it was burnt with the actual cautery, and when there was a nice granulating surface a Thiersch graft was put on. In that way the orbit was healed up entirely, except a small fistula which led into the region of the lachrymal sac. In spite of thorough curettement, the tract refused to heal up.

After a year the lesion was about the size of a half-dollar and was covered with large sprouting granulations. Two months later sections were made of different parts of the lesion. Some were pronounced lupus and others carcinoma and some a mixture of both. The constant irritation of the discharge, the constant cauterizing and curetting evidently had started up a carcinomatous growth. The lesion began to spread rapidly. The man has been operated on four or five times since, each operation being followed by a short period of relief. The patient is still alive, but in a very bad condition.

Dr. Snydacker insisted on the importance of removing the lachrymal sac in these cases.

Discussion.—Dr. W. E. Coleman referred to a case of exenteration of left orbit for probable glioma. The tumor was not examined microscopically. The mother noticed a white spot in the pupil when the patient was about 9 months old. Three months afterward a physician enucleated the eye, and when the growth recurred in the orbit he treated it with the x-ray. The growth seemed to subside. Raying was discontinued, because the lids could not be opened any more. When the growth was about the size of a hen's egg, the patient came to Dr. Coleman. He exenterated the orbit, including both upper and lower lids, removing the periosteum. The orbit was rayed for about a month, but the growth recurred and gradually filled the orbit. The child died in coma about one month after the operation evidently from an involvement of the brain.

Dr. Coleman believes in the use of the x-ray both before and after the operation. It has a beneficial effect on the tissues surrounding the globe and it offers some prospect of preventing a recurrence.

Dr. Geo. F. Suker said that he had seen Dr. Coleman's patient when he was quite black, and when he was dead he was nearly white. The original tumor was very small and the enucleation was done very thoroughly. The x-ray was used within ten days after the operation. Two weeks later there was a large hemorrhage into the socket, which promptly organized.

Dr. Jos. Beck has used the x-ray on mucous membranes with good results. In trachoma the eyeball is irritated too much to get the effect of the ray on the granulations, and one must be careful in using the x-ray here because of the loss of the hair of the lids and eyebrows.

Dr. Coleman said that the eyeball will bear greater radiation than the skin, probably because the eyeball is moist. In trachoma, with a spark gap of 2½ inches, tube distance of six inches and a ten minutes' exposure will not produce harm if rayed twice a week. The lids need not be everted. He has seen cases recover after from 25 to 35 exposures.

ANTIPYRIN AMAUROSIS.

Dr. F. C. Hotz reported the case of a patient whose vision became so impaired that he could not find his way. The patient had suffered from migraine for a number of years, and for three years he had attacks declared to be rheumatic and consisting of extremely painful red spots on the limbs and body, which yielded to antipyretics. They were not attended by fever. Three years ago he had severe neuralgic pains on the side of the head and in the eyes. The eyeballs were tender to the touch. The pains were not relieved by salicylic acid and quinin, of which he took four grains every four hours for three days. He was then given antipyrin in five-grain doses, in capsules, of which he took 130 grains in 48 hours. Then he noticed that his sight was failing, and in 48 hours more vision was practically gone.

When first seen by Dr. Hotz he could count fingers close to the eyes. A perimetric test of the field of vision was not possible, but a rough test with shaking the hand showed a decided contraction of the field in the left eye and also a central scotoma. The pupils were dilated and did not react to light or convergence. The eyeballs were not tender to pressure. The media were clear. Tension was normal. The temporal side of the pupil was of a bluish-white color; the vessels thin.

The patient was referred to Dr. Church to determine whether any lesion existed to which the blindness could be attributed, but nothing was found. He was put on pilocarpin sweats. A week later the pupils were contracted and active. The ophthalmoscopic appearances were the same. The right eye counted fingers four feet; no scotoma. The left eye could not count fingers and a scotoma was present.

One week later vision had improved considerably so that a perimetric measurement could be taken. In the left eye the color fields were contracted, with marked scotoma. The right eye showed no scotoma, but a contracted field. Vision in the right eye was 20/70; in the left, fingers at four feet. The retinal vessels were more normal in size.

The patient improved so much that he returned to his home, where he was put under the observation of Dr. J. C. Brown, who reported, one month later, vision in right eye 20/15; left eye, 20/20, with normal appearing fundi in every respect normal.

The patient was an inveterate smoker, and it might be thought that his trouble was a tobacco amblyopia, but, aside from the fact that in tobacco amblyopia the trouble does not come on suddenly and the field is not contracted, the characteristic point is the central scotoma. In quinin amblyopia the improvement comes on rapidly, and it is especially the peripheral field that becomes contracted and the contraction is enormous, but there is only one case recorded in which there was a central scotoma. In this case there was a central scotoma and a contraction of the visual field, one symptom of tobacco amblyopia and one of quinin amblyopia. But the patient did not take much quinin, and he had taken it before without ill results. Nor did the disturbance occur immediately after taking the quinin, but after the ingestion of enormous doses of antipyrin, which makes it probable, almost certain, that the antipyrin intoxication was the cause of his trouble. No case of this kind is recorded in the literature, although a transient amblyopia, after taking antipyrin, is mentioned, but in all probability the patient was a victim of an idiosyncracy. In two cases the amblyopia lasted 30 minutes following the ingestion of one gram of antipyrin. In one case vision was impaired for three days following the ingestion of 60 cgm. taken at intervals of an hour to relieve a nervous headache.

Discussion.—Dr. Thomas Faith mentioned the use of antipyrin injections in the treatment of secondary atrophy in a case which had been under the observation of Dr. B. Bettman while Dr. Faith was an interne in the Illinois Eye and Ear Hospital. The patient got rapidly worse and the injections had to be discontinued. Sufficient cocain was added to the injection to prevent the pain of the operation.

Dr. Clark Hawley cited a personal experience following the use of somewhat large doses of antipyrin taken to relieve headache. On two occasions he took ten grains at short intervals, and vision was so seriously disturbed that he could see only with difficulty. He did not, at the time, attribute this occurrence to the antipyrin.

EXOPHTHALMUS IN SCURVY.

Dr. F. C. Hotz reported a case of marked exophthalmus occurring in a child suffering from infantile scurvy. The symptoms of the scurvy were typical, especially in the lower limbs. He thought that the exophthalmus was due to subperiosteal hemorrhages. Under proper regulation of the diet the child made a very rapid recovery, the exophthalmus finally disappearing entirely.

Thomas Faith, *Secretary.*

Joint Meeting with the Chicago Medical Society, Feb. 21, 1906.

Dr. George E. Fiske in the Chair.

Dr. W. H. Wilder read a paper on "The Eye as Affected in Tuberculosis." The following is a synopsis:

1. Typical eye tuberculosis is comparatively rare.

2. There is a strong presumptive evidence that many diseases of the cornea, iris and ciliary body in which gross tubercular lesions do not develop are excited by the toxins of the bacillus. Whether tuberculin has the same diagnostic value in these conditions as in the gross lesions has not yet been determined.

3. The use of tuberculin for diagnostic purposes is safe and in a large measure reliable.

4. The encouraging results from the use of tuberculin reported by v. Hippel, Schieck and others lead us to believe that we have in it a valuable therapeutic means.

The paper is published *in extenso* in *Illinois State Medical Journal.*

Dr. Arnold Klebs said, in discussing the paper, that ocular tuberculosis offers the most favorable opportunity for the study of localized tuberculosis. Even before the discovery of the bacillus, inoculation experiments on the conjunctiva, cornea and anterior chamber contributed one of the most valuable chapters of our literature. Since 1882 it has been shown that (1) although the conjunctiva offers great resistance to infection, it may serve as an atrium of infection of the neighboring glands, both in the case of the tuberculosis bacillus (Cornet) and the plague bacillus (Morax and Elmassion); (2) infective agents reach these glands more readily in infants than in adults (Weigert); (3) the conjunctiva is very rich in phagocytes, which play a primary rôle in the excretion of antitoxins (Metchnikoff); and (4) antibodies are found in notable quantities in the conjunctiva, as well as in the spleen and bone marrow, in animals immunized against the jequirity bean extract (Römer).

Dr. A. R. Baker, Cleveland, said that Brun's experiments (production of phlyctenulæ by injection of dead tubercle bacilli into the general circulation) tend to corroborate the view that phlyctenulæ are tubercular in nature. Although miliary chorioidal tuberculosis is frequently found at postmortem it is rarely reported during life. For years he has looked on patches of chorioidal atrophy without pigment and with little evidence of inflammation and no history of syphilis, as tubercular. The mild course of tubercular iritis vitiates, in a measure, the claim for tuberculin therapy. Gourfein's experiment (inoculation of rabbits with the aqueous withdrawn from the patient) should find more general use in diagnosis. Enucleation is a dangerous procedure, as shown by a report that six of twelve patients died from meningitis shortly after the operation.

Dr. C. H. Beard believes that Parinaud's modification of Villenin's experiment (introduction of suspected material into the abdominal cavity of guinea-pigs) is to be preferred to inoculation of the anterior chamber, because the bacillus can be found in the inguinal gland tuberculosis so excited some two weeks sooner than in the experimental iritis. Aloing and Chaumont find the bacilli are agglutinated when exposed to serum removed from a tubercular surface. Local reaction from tuberculin is of much greater diagnostic value than the general temperature rise. Treatment of experimental tuberculosis by tuberculin and tuberculocidin has been very unsatisfactory, since the experimental disease is a virulent manifestation, whereas most writers regard spontaneous ocular tuberculosis as an attenuated form (Schieck).

Dr. W E. Gamble declared that the old tuberculin should be used for diagnosis and the new for therapy. The smallest focus of general tuberculosis reacts to the diagnostic injection (Tinker). The determination of the opsonic index as practiced by Wright of London may prove of value.

Dr. Arnold Klebs expressed the opinion that the technic of determining the opsonic index is entirely too complicated to enable the method to become of practical value.

Dr. F. H. Montgomery said that in nearly 1,000 cases of lupus vulgaris studied in the Copenhagen dermatological clinic three years ago more than 60 per cent. were found to originate within the nose; this would materially reduce the per cent. of primary conjunctival tuberculosis.

Dr. E. F. Snydacker presented a paper on "The Involvement of the Eye in Syphilis," of which the following is a synopsis:

1. In a large proportion of syphilitic eye diseases the history and clinical aspect are obscure and must be elucidated by careful investigation of the complete clinical aspect of the case and the therapeutic test.

2. Syphilitic eye lesions simulate almost all other forms of eye diseases and tumors.

3. One must distinguish between the two classes of lesions, the syphilitic and the postsyphilitic. Inherited lues is a postsyphilitic manifestation.

4. Antispecific remedies are useless and even harmful in the treatment of postsyphilitic nervous diseases.

5. Syphilitics are prone to kidney lesions, which may cause retinal lesions; these have only an indirect causal relation to lues and are therefore not benefited by antispecifics.

6. Eye operations on syphilitics have a more unfavorable prognosis than on non-syphilitics, and should be preceded by a course of antispecific treatment.

7. The treatment consists of proper local treatment with appropriate systemic medication consisting of the use of mercury and iodid of potash. Mercury is preferably given by innunctions and injections, and is always indicated in every stage of luetic eye lesion due to direct syphilitic insult.

This paper appears in full in the *Illinois Medical Journal.*

Dr. O. S. Ormsby in discussing the paper said that during the past year a small organism, the spirochæta pallida, has been found in the initial lesion, the secondary lesions, and in some tertiary lesions of acquired syphilis, and in the internal organs of congenital syphilis. Hutchinson's triad is important only when other symptoms, as mucous patches and periostitis, are present. Postsyphilitic nervous lesions are not benefited by treatment because the tissue is already destroyed.

E. V. L. Brown, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of January 20, 1906.

Dr. Charles E. Walker of Denver Presiding.

HIGH FREQUENCY CURRENT IN OPTIC NEURITIS AND AMBLYOPIA.

Dr. D. B. Strickler of Denver reported the case of Mrs. C. M., aged 31, married. One child, 21 months. Excellent family and personal history except constipation for past ten years, and three years ago first began having "unconscious spells," lasting for five or six minutes and returning two and three times a week since, with an occasional skip of a week. These spells were preceded by jerking of both arms, occasionally by jerking of the knees, when if she did not lie down she would "fall in a heap." No biting of the tongue nor frothing at the mouth during the attacks, which were followed by drowsiness and often a dull headache.

On December 28 she was sent for examination because of increasing headaches, which were aggravated by using the eyes. Vision, R. E. 20/70 with — 0.75 D. C. Y. ax. 180° = 28/40, L. E. 20/50 with — 0.75 D. C. Y. ax. 180° = 28/40. January 4, under full atropin mydriasis, R. E. 20/100 with + 0.25 Ds. ○ + 1 D. C. Y. ax. 90° = 28/40, L. E. 20/100 with + 0.38 Ds. ○ + 0.62 D. C. Y. ax. 90° = 28/50. Full cylindrical correction was prescribed. The ophthalmometer showed corneal astigmatism of 1.75 D. ax. 90° in the right eye and 1.25 D. ax. 90° in the left. Optic neuritis was present in both eyes, the swelling measuring approximately 2 diopters, slightly more in the left than in the right. She was treated by the high frequency current January 10. Vision with her glasses before treatment, 20/40. Ten minutes after the treatment, 20/30, minus two letters. The treatments were given every second day until January 20, when the vision was 20/20, minus two letters, with either eye. The case was presented to get an expression upon the value of the high frequency current in optic neuritis, this being Dr. Strickler's first experience with it in this class of cases. The current seemed to have immediate and definite effect upon the vision, but so far as could then be ascertained made little difference upon the appearance of the nerve, its vascular condition or the edema.

In regard to the permanency of the effect from the high frequency current in amblyopia, Dr. Strickler stated that in one case of his own in which the vision had been brought up from 20/200 to 20/30 by ten treatments, this vision held three months later, the case not having been seen since. He understood that Dr. Coover's early cases had held the full amount of improved vision. That it does improve the vision in the great majority of amblyopic cases he declared was no longer questioned by those who have used it for this purpose.

Discussion.—Dr. Patterson reported a boy of 10 years with 2 D. H. in the right eye, and 3 D. H. in left, with squint. Full correction had cured the squint, but had not given binocular vision for reading. The high frequency current was then used three or four times, after which + 2 D. sph. seemed sufficient correction for the left, and with + 2 D. sph. R. and L. V. = 5/5 mostly, and binocular vision of Jaeger 2 types was obtained.

Dr. Davis reported a case of optic neuritis with V. = 4/10, in which he gave 20 grains of iodid of potassium t. i. d. and used the high frequency current ten days, when the optic neuritis had subsided and vision had returned to normal

Dr. Black reported cases of amblyopia treated by high frequency current: (1) Vision of 5/7.5 was increased to 5/6 by the first treatment, and after a few more treatments became 5/5. (2) V. = 5/20 at first visit. After two years' wearing of correcting lenses V. 5/15. The high frequency current was then applied for several days with no improvement in vision, but after further use of the current the vision rose to 5/9. (3) In another case the vision had risen from 5/20 to 5/6 under this treatment, and at last report, four months after discontinuing use of the current, the improved vision still held.

TRACHOMA.

Dr. Walker presented a case of trachoma in an adult male, in which the corneas showed the characteristic nicking seen in this disease. Enlarged follicles in the caruncles and at the fornix of the upper lids had been expressed with marked benefit to lids and corneas.

Discussion.—Dr. Davis had recently seen double corneal opacity which appeared after the use of the *x*-rays.

Dr. Jackson reported use of *x*-rays for 2 years in carcinoma below inner canthus, with no injury to the corneas.

SUBRETINAL NEOPLASM.

Dr. Melville Black reported the case of a candy maker, 22 years of age. Three years ago he had lost the vision of his left eye without known cause. The upper field was first lost and gradually the eye became entirely blind. It was not painful then and the eye was not inflamed, nor had it been since. Casually observed the eye appeared normal. Close inspection showed the iris adherent to the lens below, but the pupil was free elsewhere and reacted with its fellow, but not alone. Tension was slightly minus. The lens was clear. The retina was everywhere detached. The reflex below was questionable where there was the appearance of a heavy opaque membrane that came well up to the lens. This, together with the iritic adhesions, made Dr. Black fearful of a growth in the lower part of the eyeball. The case was presented for diagnosis.

Discussion.—Dr. Stevens said that, because of the minus tension in this case and from the usual posterior origin and slow growth of sarcoma, he thought the presence of a growth very questionable.

Dr. Davis suggested transillumination as a means of diagnosis.

Dr. Jackson advised ophthalmoscopic examination, using direct sunlight, or after its reflection from a mirror placed in the sun. He said that the large vessels were suspicious of a new growth, in spite of lowered tension, and that we do not know how long growths exist before the tension becomes minus. He thought this case one of inflammation or growth, more likely a growth.

Dr. Patterson thought the tortuosity of the vessels was suggestive of a growth.

In closing the discussion, Dr. Black said he had watched a suspicious case two years in which sarcoma had been shown on enucleation.

INTERSTITIAL KERATITIS.

Dr. G. F. Libby, of Denver, exhibited two cases which he had reported at the April meeting of this society, each having suffered from interstitial keratitis at fifteen years, being the children of a syphilitic father, and aged 20 and 16 years, respectively. The older case showed diffused general leucoma and iritic adhesions at points around the entire circumference of the iris of the right eye and nebula of the upper third of the left cornea. The younger child had recovered from the keratitis of April, 1905, in which the entire cornea of the right eye had been intensely infiltrated, and showed only a faint nebula in the upper corneal quadrant two months later. The treatment by potassium iodid and calomel had been continued five months. After one month's intermission the iodid had been resumed and administered in small doses for two months, when the left eye became involved. The cornea showed a patch of diffuse infiltration in the upper third, while in the lower two-thirds irregularly round maculæ were disposed in the different corneal layers, and the epithelium was roughened. The condition was progressing favorably under atropin locally, potassium iodid and calomel internally. A feature in each case, especially the younger, was the apparently perfect general health and the easy toleration of iodid of potassium up to 60 grams t. i. d.

Discussion.—Dr. Patterson called attention to Darier's symptom as shown in this case, one cusp of a bicuspid tooth appearing dead white.

ORBITAL CELLULITIS WITH ABSCESS.

Dr. W. C. Bane, of Denver, reported a case of orbital cellulitis. F. T., aged 51, ranchman. He had first seen the case Jan. 8, 1906. History of smarting sensation and swelling of right eye, beginning 5 or 6 days previously. Pain developed in 24 hours. Had a chill. Appetite poor. The pain extended from the right eye over the right side of the forehead. Pulse, 84; temperature, 101.7°. Enormous swelling of upper and lower eyelids. Ocular and palpebral conjunctivæ chemotic. Exophthalmos of right eye, about three-quarters of an inch beyond the left eye, being on a plane with the bridge of the nose. Lids of dark purple color and lower lid mottled yellowish, indicating pus beneath the skin. Upper tarsus everted. Lids separated half an inch. Cornea dry and sloughing. Vision *nil.* Incised lower and upper lids, evacuating a great deal of pus that undermined the skin of the lids and extended back to the apex of the orbit. Wounds cleansed and dressed with 1/500 sol. of alphozone. Perforated rubber drainage tubes inserted back to apex of orbit. Patient was put on tinct. ferri chlor. and quinin. The discharge of pus had been very free. Swelling very much reduced, yet marked, and edema of the conjunctiva remained. The inferior margin of the orbit was denuded of the periosteum, as evidenced by the probe. Temperature was normal. Appetite good. Dr. Bane anticipated enucleation as soon as it seemed wise to remove the eye.

Dr. Bane presented Miss E. H., aged 19 years. She had been accidentally struck on the right eye with a roll of paper Nov. 23, 1904. The eyeball had been inflamed and painful for three days. She had been able to see print upon returning to school one week after the injury. In July, 1905, she had discovered that she was unable to see with that eye. Her physician regarded it as a case of hysteria and ordered a simple lotion, with the suggestion that her vision would return. Some vision for light in the outer field did return. Vision in 1903 had been 6/6 with each eye, as per record of school test. The eyes were first examined by Dr. Bane Dec. 27,

1905. Vision R. E. 2/50, L. E. 6/6 +. Fields: R. E. limited to lower three-fourths of temporal field, commencing at 5° from the fixation point, i. e., all the nasal field and the upper quadrant of temporal field was blank. Field of left eye normal. Pupils equal, although the right pupil did not respond to light except consensually. Left pupil responded to light and accommodation. The outer half of the right retina had a wavy, corrugated and faintly striated appearance about the macula. The retina had evidently been detached to a great extent and had since become partially reattached. Vision of the right eye was raised to 5/60 with + 1.50 sph. ○ + 1.50 cyl. 75°. Yet the letters were unsteady.

Discussion.—Dr. Black expressed the opinion that the retina was still slightly detached and advised subconjunctival injections of saccharate of soda.

Dr. Stevens believed the striated appearance of the retina due to reattachment following an old detachment.

Dr. Patterson considered this case one of fibrillary edema of the retina, after the designation of Freidenberg.

Dr. Jackson had made a drawing of a case of 20 D. elevation of the retina, which subsequently reattached.

Dr. F. R. Spencer reported the case of a man, 29 years old, with an infiltration the size of a pin head at the center of the pupil, with other smaller ones adjacent. The patient had contracted syphilis two years previously, having been under specific treatment for first year, but none for past 9 or 10 months. Dr. Spencer had ordered inunctions of mercury and K. I. ʒi t. i. d. under which the opacities were fast disappearing at the end of three weeks.

Discussion.—Dr. Jackson said that such spots were occasionally observed in acquired syphilis of older standing and were slow to clear up.

Dr. Neeper related two cases of angular arteries so large and so superficial that it was necessary to have a specially constructed bridge for the spectacle frames.

Dr. Stevens reported a case of iron splinter about 9 mm. long and 2½ mm. at base, tapering to a sharp edge, removed from behind the ciliary body, through the sclera, by the Hirschberg magnet. The patient had felt sure the iron had not penetrated the eyeball.

Dr. Black, summing up his experience in recent extirpations of the lachrymal sac, advised that no avoidable blood vessels be cut, that the sutures be buried, and an iodoform and collodion dressing be applied.

HYSTERIA OR MALINGERING IN MALES.

Dr. Jackson reported two cases of hysterical or pretended blindness. The first was a healthy man, aged 30, who had difficulty in getting work. He gave a history of convergent squint during boyhood, with amblyopia in the right eye. He claimed that he had recently lost the sight of the left eye. The fundus was normal, there was no evidence of retrobulbar neuritis or other disease to account for blindness, and the pupils reacted perfectly to light thrown on either eye. He was admitted to the hospital and placed under the influence of atropin, which showed a hyperopia of 7 D. in the right eye and 5 D. in the left. He had worn no glasses. Refraction was measured by skiascopy, and the interne instructed, in the patient's presence, to try what vision could be obtained by the lenses, and if it were not up to a certain standard that blisters were to be applied to the temple. Good vision was immediately obtained in the left eye.

A boy, aged 7, was brought with the history that he had suddenly been found "near-sighted" at school. The eyes showed no appearance of disease, but only vision of 4/30 was admitted. Atropin was instilled and the refraction measured by skiascopy. Correcting lenses, R. and L. + 1.50, were placed before his eyes and he read 4/4.

Dr. Jackson believed the use of a cycloplegic was an important means of restoring vision in these cases. The mental impression produced by showing the patient the difference between the real and the fancied or pretended disability tended strongly to bring about the restoration.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, January 25, 1906.

Priestly Smith, F.R.C.S., President, in the Chair.

Mr. Simeon Snell (Sheffield) related a case of septic thrombosis of the cavernous sinus. On May 1, 1895, a medical man pricked a small vesicle on the upper lip with a gold scarf pin which had been used previously to open an abscess, and which was thought to be clean. The next day there was a redness and swelling, and later on that day he was obliged to go to bed. On the 5th the condition of the lip was worse and the blush extended to the left cheek and orbit. This was followed by proptosis and swelling of the conjunctiva and eyelids. Later the right side followed the same course, the proptosis being even more marked on this side. The movements of the eyeballs were interfered with and there was paralysis of the right facial nerve and deafness on the right side, also dullness and evident effusion of the right side of the chest. The patient died 14 days after the commencement of the illness, his mind having been unaffected throughout. Mr. Snell remarked that the initial lesion was that on the lip which the medical attendants had considered to be malignant facial carbuncle. No postmortem was allowed.

Mr. Snell also related the case of a pork butcher, aged 48 who came to him with acute edema of the eyelids on both sides. The day before he had been dressing a pig, when the gut which contained a large number of worms, burst, and the contents splashed into his face. The edema was present 3 or 4 hours later. When first seen by Mr. Snell 22 hours later the eyelids on both sides were intensely edematous, projecting as large semitranslucent swellings, leaving only a chink between them. There was considerable chemosis of the conjunctiva. The next day the swelling had much subsided, and the day after the condition of the eyelids had almost passed away, though the conjunctiva remained red.

The worms in the pig were the same class as ascaris lumbricoides and in seeking an explanation for the condition Mr. Snell mentioned that it had been recorded that these worms, when alive, give off an irritating vapor. From another pig, in which the worms had collected together, the contents of the gut and also nutrient broth, into which some of the worms had been placed, after having been cut to pieces, created no irritation when instilled into the conjunctiva of a guinea pig.

A. Maitland Ramsay read a paper on the treatment of detachment of the retina. This paper was based on a record of fifty consecutive cases of detachment of the retina, treated in the Glasgow Ophthalmic Institution, during the four years ended October 31, 1905. The active treatment consisted in sub-conjunctival injections of 5 to 20 minims of 1 in 2,000 bicyanide of mercury with 8 per cent. chlorid of sodium solution, the severe pain that always followed being mitigated by the addition of a few drops of 1 per cent. acoine solution. The injection was repeated as often as might be necessary, at intervals of from four to six days; and if no decided improvement showed itself within a fortnight, free diaphoresis was induced by the subcutaneous injection of from 1/8 to 1/4 of a grain of pilocarpin, this alternating with the subconjunctival injections. If the site and character of the detachment were deemed favorable, the subretinal fluid was always evacuated by scleral puncture. The patient was kept prone in bed with his eyes bandaged, and every effort was made to improve his general well-being, by careful attention to diet and to the action of the bowels, kidneys, and skin. Marked chemosis of the conjunctiva was essential, and when the reaction to the subconjunctival injection was absent or ill-marked, 1 to 2 per cent. of dionin was added to the bicyanid and chlorid of sodium solution. Of the fifty cases treated, ten showed a decided improvement, and thirteen a moderate improvement, though of the former group five, and of the latter group two, relapsed at intervals varying from two weeks to four years. The more recent the detached the more favorable the prognosis, but the pathologic antecedents of the affected eye were more important than the duration of the condition. Failure was the rule in all cases marked by a seriously degenerated choroid, a pupil sluggish to mydriatics, a much diminished tension, and a red-colored separation. The method of treatment outlined was simple, applicable to all cases, and, as far as the author's experience went, never did any harm.

Dr. D. J. Wood related a case of bitemporal hemianopsia. The patient was a man, aged 33, who had suffered for over a year with frontal headache, failing vision and loss of memory. The vision of the right eye was 1/60 and the left 6/60, and there was bitemporal hemianopsia with contraction of the field and loss of fixation in the right. He was mentally dull and forgetful and there was marked delay in answering questions. The pupils were sluggish and the knee jerks were almost absent. During the 52 days he was in hospital he grew worse mentally, and on account of his foul language and filthy habits it was impossible to keep him in. After 62 days, during which there was little change, he suddenly sat up and began to ask sensible questions and when seen some months later he was mentally quite well. His right eye showed optic atrophy, was blind and divergent. The left improved to 6/18, his patellar reflexes were normal, and his memory for events after his sudden recovery was good. He had no recollection of anything during the previous three and one-half months. His history was given by his wife, brother-in-law and mother who all agreed as to the details.

The case was thought to be one of cystic growth of the pituitary body, which during a fit of coughing had ruptured through the eroding bone and had escaped into the pharyax or nasal cavities, but nothing of this sort was noticed by the friends, and the patient was more or less unconscious until the actual relief of pressure had occurred.

Clinical Evening, Thursday, February 8, 1906.

Charles Oldham, F.R.C.S., Vice-President, in the Chair.

Messrs. Arnold Lawson and George Coats showed preparations from a case of congenital anterior staphyloma previously brought before the society by Mr. Lawson. The eye had spontaneously ruptured 6 weeks later. The central portion of the cornea was thinned and had a cicatricial appearance. The cornea was perforated with a knuckle of retina caught in it. The lens capsule and iris were adherent to the back of the cornea. Owing to stretching the ciliary process, pars plana, ora serrata, and anterior part of the choroid were carried forward with the cornea. Owing to the firmer attachment of the ciliary body to the sclera, this had been left in its normal position. Thus the ciliary processes were further forwards than the termination of Descemet's membrane, and the ora serrata was actually in front of the ciliary muscle. Only one other case of the kind has been described, also in a similar case to this one. The reason of this displacement was due to the fact that in fetal life the inner layers of the uvea were less intimately connected with the outer than is the case after birth, and the same occurs in many of the lower animals, especially in birds. The staphyloma in this case was believed to be due for certain to intrauterine inflammation and perforation of the cornea.

Mr. Holmes Spicer showed a patient, aged 48, who had always been short-sighted. The left eye had been blind ever since an injury he had received 30 years ago, and the right eye failed in 1901 and now had total posterior synechiæ and no P. L. The left eye had a corneal opacity and tremulous iris, the lens was tilted and slightly dislocated backwards, it was quite opaque and there was no fundus reflex. The vision was P. L. and the projection was good. On March 3, 1903, a needle was introduced behind the ciliary body, and the lens was pushed backward. Sight was at once obtained, and it had since improved so that he was now able to see 6/60. There was a large area of myopic atrophy of the choroid about the disc, and the shrunken lens was visible at the bottom of the vitreous.

Mr. Spicer also showed a case of superficial punctate deposit on the cornea. The patient was a girl, aged 16, whose right eye was attacked with interstitial keratitis in 1897. She become deaf in 1902 and she had an attack of interstitial keratitis in the left eye in 1905. The latter was severe and lead to much opacity, and to the development of salmon patches in two places, and a deposit of keratitis punctata at the back of the cornea. The left cornea had cleared considerably; there was some deep opacity near the center, and numerous small brown or dirty white dots exactly like keratitis punctata, but they were evidently close to the surface, and in front of the old interstitial capacity.

Mr. Ludford Cooper showed a girl, aged 11, suffering from elephantiasis neuromatosis. There was much deformity of the right upper eyelid and temporal region. The lid was pendulous and all its structures were greatly hypertrophied. The lid was also considerably everted. The patient was unable to lift it, and it could with difficulty be raised so that the small shrunken globe beneath it could be seen. The lens was opaque and the tension was normal. The outer and lower portions of the frontal bone, and of the squamous portion of the temporal bone were much more prominent on the affected side. The condition was congenital and was slowly increasing.

Mr. E. E. Henderson showed a woman, aged 29, who had a growth on the upper palpebral conjunctiva. For several weeks she had noticed something moveable beneath her upper lid, and for three days it had protruded. An oval mass was found about 2.5 cm. long and 1 cm. broad. Its surface was smooth and vascular, and was attached to the fornix by a strip of conjunctiva containing vessels. It was thought to be tubercular.

Mr. Sydney Stephenson showed a boy, aged 9, who had two detachments of the retina in one eye, one above and the other below. The tension was increased, and the vision was bare P. L. Transillumination showed that light passed readily through both detachments. The other eye was myopic, with some vitreous opacities. There was an obscure history of injury, and a doubtful history of tubercle in the family. The question was one of diagnosis, though it was considered to be of a tubercular nature by Mr. Stephenson.

Mr. H. H. B. Cunningham showed a girl, aged 5, whose sight was noticed to be defective at school. In both eyes the lenses were displaced, most marked in the right eye, the suspensory ligament below was absent. There was no coloboma in either iris or choroid. The right eye was myopic about 8 D, and the left about 3 D, but with some astigmatism in both.

Mr. A. Stanford Morton showed the drawing of a case of staphyloma posticum verum (Weiss).

Mr. Treacher Collins showed two cases of congenital coloboma of the iris with a bridge. In the first case there was a bridge of pigmented iris tissue about 1 mm. in breadth, stretching across the space formed by the pupil and the coloboma. It was situated a little below the level of the margin of the pupil, which was pear shaped, with the small end downwards. In the second case the two eyes presented two lesser degrees of the same condition. In one eye the stroma of the iris was alone deficient below the bridge, the pigment epithelium being left exposed. In the other eye, the space below the bridge formed in part a complete gap in the iris, and was in part filled with pigment epithelium. The developing iris receives its blood supply from two sources, (1) loops of vessels budding off from the anterior ciliary arteries, and (2) branches continued forward round the sides of the lens from the central hyaloid artery; these form a circle of anastomosis anteriorly. The gap in the iris peripherally in these eyes might be explained by the failure in formation of one of the loops from the anterior ciliary arteries, and the bridge, by the normal formation of the anterior circle of anastomosis from the central hyaloid artery.

Mr. Arnold Lawson showed a case of persistent edema of the upper eyelids in a girl, aged 12. The affection commenced about six years ago, shortly after recovery from an attack of measles which ran a normal course. Both upper lids were much swollen and drooped over the eyes, almost obliterating the palpebral fissures. The skin and subcutaneous tissue were not at all altered, and the state of the general health had much to do with increasing or diminishing the edema. The condition was strictly limited to the upper lids, and but for its weight it did not cause any inconvenience.

Mr. Lawson also showed a case of concomitant divergent vertical strabismus, with associated movements of the lids. The squint had existed since early infancy. The right eye was always used for fixation, and the left was divergent, and on a lower level than its fellow, the upper lid drooped over it so that it almost concealed the cornea from view. On screening the right eye, the left quickly moved upwards and inwards to the position of normal fixation, and the lid was correspondingly elevated. Behind the screen, the right eye deviated upwards and outwards, and the upper lid was strongly retracted. On removing the screen, the left eye and lid once more dropped to their former position. On asking the child to look upwards, the movement of the left was seen to be defective, and on attempting to look downwards, the movement of the right eye was seen to be less than the left.

BERLIN OPHTHALMOLOGICAL SOCIETY.

Meeting of January 18, 1906.

President, Prof. von Michel in the Chair.

Prof. Nagel showed two new instruments, an adaptometer and a small spectral apparatus. The photoptometers of Aubert and

Förster, Prof. Nagel said, do not give sufficient accurate results. It has been shown that the sensibility of the retina to light increases in the dark by 8,000 times (more or less) and not by 35 times, as the above authors wrote. The new adaptometer of Nagel is a box about two feet long in which are a number of apartments divided by square milk-glass and lit up by three osmium electric lights. By interposing diaphragms and tin cards with various sized holes it is possible to reduce the light intensity of 75 "kerzen" gradually to eight million less. Prof. Nagel believes that by examining pathologic cases by means of this instrument we might be able to discover the beginning of some diseases earlier than hitherto. The apparatus cost about 275 m. and is made by Schmidt and Haensch, Berlin. The spectral apparatus of Nagel is a comparatively simple instrument by means of which we are able to examine the color sense with spectral colors. Seeing that all other tests are often misleading, especially as to the detection of the so-called "anomalous trichromates" (von Kries) the new instrument is a great improvement. It is manufactured by the same firm and will probably cost about 100 m.

Dr. Collin showed a new perimeter for examining the field of vision with colors. The only thing new about this perimeter is that it is painted gray and that instead of using colored cards colored glass is lit up by a small electric light. The limits of red and green are very much nearer to blue than formerly supposed. The apparatus was made by Doerffel and Faerber and costs about 500 m. Dr. Collin then showed a small testing apparatus of Nagel for color blindness.

Prof. von Michel lectured on some rare diseases of the lid and conjunctiva and showed some very interesting specimens of adenoma, pinguecula, blepharochalasis, tuberculosis, syphilitic phlebitis, amyloid and cysts, etc. DR. E. H. OPPENHEIMER, Berlin.

Notes and News.

Dr. David Fiske has recently been appointed assistant professor of ophthalmology at the Chicago Policlinic.

Dr. Rudolph Schelske, privatdozent of ophthalmology in Berlin since the year 1876, died there recently, aged 76 years.

The city of Rome, Italy, has just commenced the erection of ten school houses of modern type, sufficient to accommodate 10,000 pupils. The buildings are to be completed within five years and are expected to do away with the present unsatisfactory conditions which prevent thousands of children from receiving instruction because there is no room for them.

At the annual meeting of the stockholders of the Chicago, Eye. Ear, Nose and Throat College reports showed a very satisfactory growth in all departments. The old board of directors, viz: W. A. Fisher, A. G. Whippern, H. W. Woodruff, Thomas Faith and J. R. Hoffman was re-elected. To accommodate the increasing needs of the institution a new building is required and it is contemplated to erect one at a cost of $75,000 on the present site in the near future.

Civil Service at the Illinois Charitable Eye and Ear Infirmary.—To the apparent surprise of every one interested, the recent state law introducing civil service examinations into the state institutions for the insane, etc., is to be applied here in Chicago to the staff of the Illinois Eye and Ear Infirmary. The law became effective on Nov. 1, 1905. The matter was precipitated by a recent appointment to the infirmary staff which ,was questioned by the civil service commission. The attorney-general was consulted and in a seven-page opinion stated that the civil service regulations apply to the infirmary. The commission intends to appoint a board of examiners composed of prominent specialists in the state. It is expected that an examination will be held and that the men attaining the highest grades will form an eligible list from which appointments may be made from time to time to fill vacancies. However, nothing is definitely known as yet regarding the manner of holding the examinations. It is probable that experience here will count for 30 per cent., as in other examinations held by the commission. Those holding staff position on Nov. 1, 1905, will not be disturbed, since the new ruling is to apply only to the filling of vacancies.

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Original Articles.

CHOLESTERIN CRYSTALS IN THE VITREOUS WITH OPTIC ATROPHY.

REPORT OF A CASE.

Gilbert E. Seaman, M.D.
Oculist to the Milwaukee Hospital and the Milwaukee Children's Hospital.
MILWAUKEE, WIS.

(Illustrated.)

Opacities of the vitreous in the form of cholesterin crystals are occasionally observed and have been reported following iritis, cyclitis, retinitis, choroiditis, hemorrhages, injuries, and in old people without any assignable cause and apparently at the time with little effect upon vision. They have also been observed in various degenerative conditions of the retina and choroid, generally accompanied by fluid vitreous and other degenerative changes which are imperfectly understood and difficult to account for. Less frequently crystals of margarin, tyrosin and phosphates have been observed. These conditions have nearly all been met with in persons of 50 years of age or over, but cases have been reported as occurring in young persons. Noiszewski and Wicherkiewicz[1] both report cases of cholesterin crystals in the anterior chamber in young persons, one a young woman and the other a girl of 10 years. In the case of the young woman a large quantity of glistening immovable crystals was seen in the anterior chamber and in the deeper layers of the cornea by focal illumination. The retina had been detached, the lens was opaque and the eye blind. In the case of the girl the glistening mass completely filled the anterior chamber and reformed after it had been evacuated by corneal section. In cholesterin opacities of the vitreous where vision is not too seriously affected, the patients complain of flashing lights, a shower of sparks as in fireworks and other visual phenomena which are extremely alarming. Seen with the ophthalmoscope these crystals reflect the light so strongly that they have the appearance of gold and silver flakes floating in the vitreous or give the impression of a shower of gold or silver spangles falling to the bottom of the vitreous and are markedly set in motion by movements of the eye (*synchisis scintillans*). In some cases when the pupil is dilated these crystals may be seen by focal illumination. The phenomena are curious and interesting in the extreme. In the case which I present there is a perfect snowstorm of silver like flakes to be observed which show a disposition to accumulate behind the lens to the temporal side and in front of the macular region.

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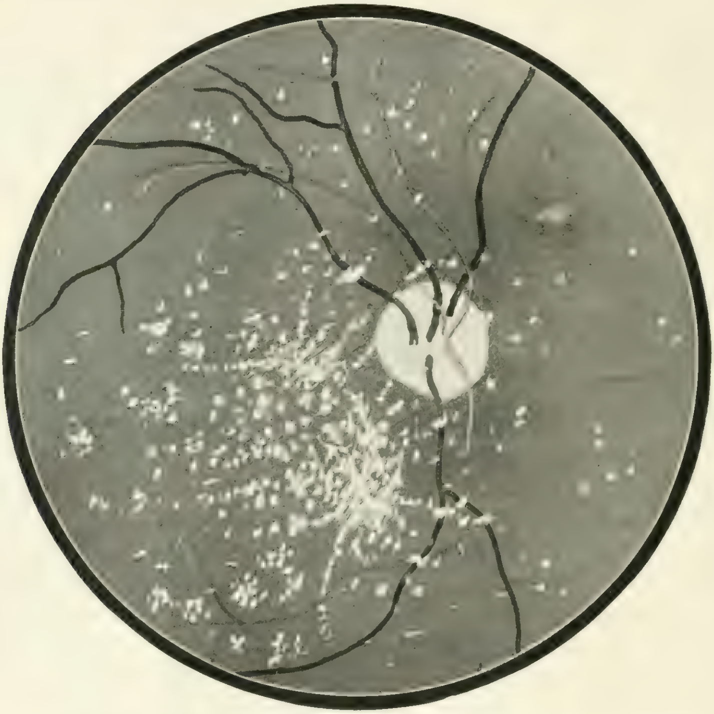
[1] Abstracted in Ophthalmology, October, 1905.



Cholesterin crystals in the vitreous, with atrophy of optic nerve and retina.

Unfortunately this condition is not the most favorable one for illustration. The history of the case which I have recently observed is as follows:

Mr. L., aged 55, born in Germany, always been in good general health. Healthy parentage. No history of venereal disease, never used alcohol or tobacco to excess, worked for twelve years, and up to two years ago for an electric light and telephone company, most of the time at underground work in cold, damp surroundings. Latterly for one year worked in the cellar of a grocery. Noticed failing vision more than one year ago, which became markedly worse last April or May, beginning June noticed that he could not appreciate colors of flowers or grass, consulted an oculist at that time and has been under observation up to the present. He has never appreciated the opacities of the vitreous nor complained of the usual subjective symptoms. At the time of my first examination, December, 1904, he presented the appearance of an ordinarily healthy well-preserved and well-nourished man, with no symptoms of any systemic disease or any disease of the nervous system.

V. R. eye equals seeing fingers at 6 inches.

V. L. eye equals 8/200. Tension slightly diminished in each eye, pupils moderately dilated with barely perceptible response to light and accommodation. Total abolishment of color sense in right eye and almost total in left. Fields of vision were markedly contracted, the discs were of a slightly yellowish-white hue, the right the more so, and there was a little blurring of the edges and the blood vessels were markedly diminished in size. There were a few small patches of retinal atrophy in the right eye. The urine was examined in July, 1904, with negative results and presents no abnormality now. Vitreous of the right eye presents numerous cholesterin crystals. In the left eye the vitreous is clear. The case progressed to total blindness in both eyes.

In this case there is no demonstrable cause for the atrophy nor is it possible to say positively what gave rise to the vitreous opacities. It is possible that the man's occupation, working in the damp and cold underground for many years, may have been the important etiologic factor. From the fact that he has never appreciated the presence of the crystals it is probable that the optic atrophy preceded this formation and was fairly well advanced before they appeared. In my experience and from a rather careful search of the literature these cases of cholesterin crystals in the vitreous are not common, and yet from the fact that I have personally seen three cases and have heard of a number of others in conversation with my colleagues I am inclined to the opinion that they occur more frequently than we would be led to suppose from a search of the literature. Many modern authors fail to mention them at all, or, if they do mention them, the subject is dismissed with a line or two. Perhaps this is partially due to the fact that, like optic atrophy itself, the treatment is very unsatisfactory. The only treatment that would reasonably be of any avail would seem to be along the line of elimination, alteratives and tonics.

SOME FORMS OF HEREDITARY CATARACT.*

Casey A. Wood, M.D.

CHICAGO.

(Illustrated.)

If by the term "cataract" one means any opacity of the crystalline lens or its capsules, it is not difficult to make out a case for the hereditary character of that abnormality. When one considers that changes in the lens affecting its transparency are rather the rule than the exception in persons above the age of 60, deductions as to the heredity of senile cataract, at least, should be drawn with considerable reserve. Every now and then, however, one encounters familial cataract presenting characters, either in itself or in individuals affected by it, that point irresistibly to a true hereditary influence. Notwithstanding the references in many text-books to the possible heredity of cataract, and in spite of the studies of Rampoldi, Fromaget, Daust, Nettleship and others on this subject, there are still many questions touching family cataract yet to be answered. For the purpose of suggesting some of these to you, I have chosen from my own experience and that of my colleagues in Chicago three cataract series in which heredity appears to enter as a probable factor.

In the accompanying diagrams I have not followed the devices of Nettleship, although for reproduction in a book or magazine of a long line of ancestry his ingenious method is much to be preferred. For graphic description I believe that the old "family tree" idea is best, and I have chosen it for this occasion. There are probably some defects in all these ancestral "trees," because one must rely for one's data upon the doubtful memory of some old people or on incomplete reports furnished by members of a younger generation. It is, I think, highly probable that, for these reasons, one or more cases of cataract may be omitted in each of the three family histories I am about to give you. It is also probable that one or two instances of juvenile shortsightedness may not have been due to early and incomplete cataract, although I have tried in each questionable instance to clear up these doubts as much as possible.

The Charlton Series.—A short time ago my assistant, Dr. Samuel Higgins, was consulted by Dr. T. B. Charlton, of Clinton, Ohio, regarding a woman, 33 years of age, with lamellar cataract, whose great-grandmother had been blind from cataract, and whose mother at the present time also has cataract. The patient herself has five brothers and four sisters afflicted with juvenile cataract. It has been very difficult to obtain a detailed account of even the living members of this extraordinary family, and still more difficult to procure precise data regarding the mother and great-grandmother. There can be no doubt, however, of the facts so far as we have been able to obtain them. Altogether it is a most remarkable series, because in this family we have 31 individuals representing four generations, of whom 11 members have had cataract, almost all of them of the presenile variety. The diagram presents rather an instructive picture. I propose to publish a supplementary report upon this series.

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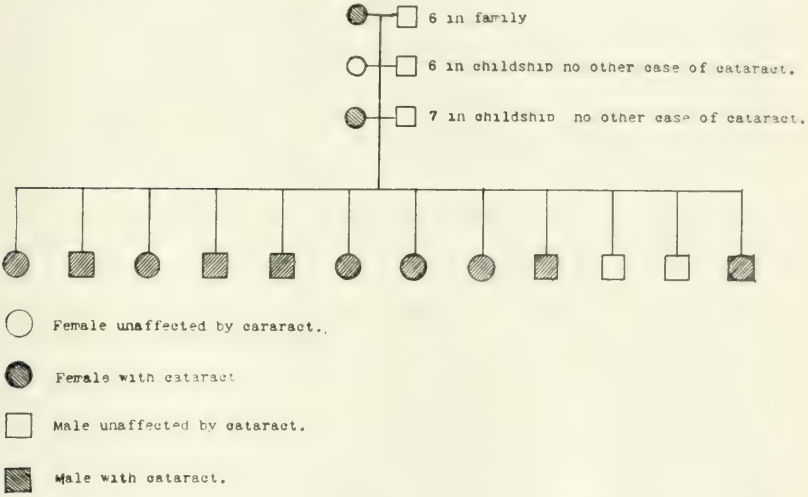
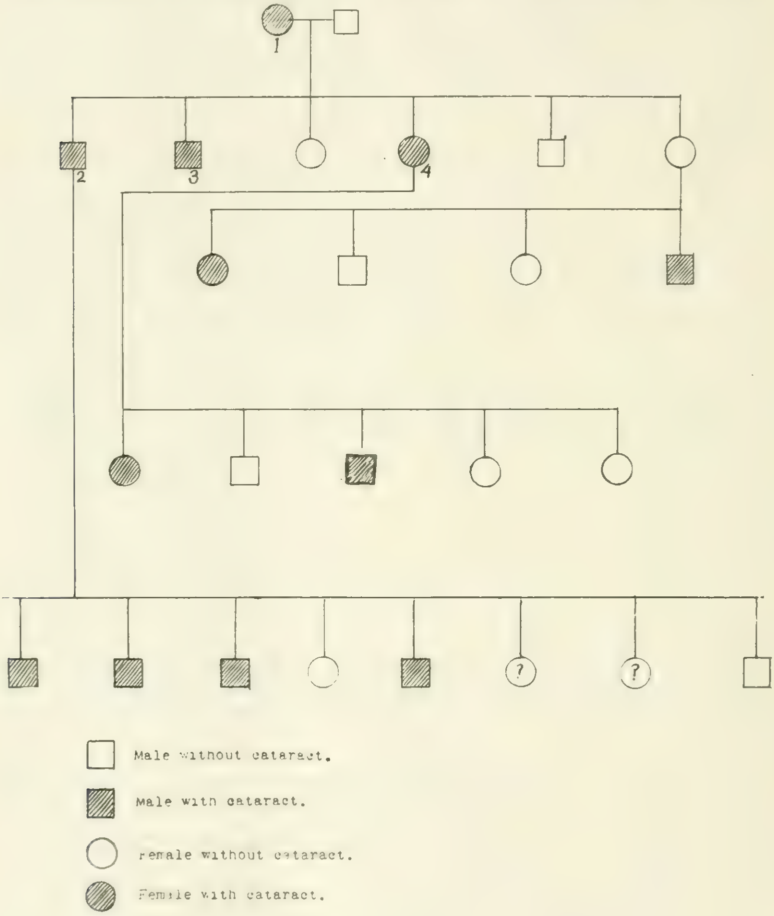
* Read (by invitation) before the Section on Ophthalmology, College of Physicians, Philadelphia, March 20, 1906.


6 in family
6 in childship no other case of cataract.
7 in childship no other case of cataract.
Female unaffected by cararact.
Female with cataract
Male unaffected by cataract.
Male with cataract.

Counting only those Siblings, one or more of whose members were affected by cataract, we have in this instance about 31 individuals (four generations), of which number *twelve* had cataract, mostly of the presenile variety and some of them certainly lamellar.

The Hussa Family.—The history of another series, that of the Hussa family, is rather interesting. Some of its members live in the United States and some of them in Bohemia, so it has been rather difficult to be certain of the facts in some of the "childships." There can be no doubt, however, but that the cataracts are all of them of the juvenile types; some of them were congenital. My colleague, Dr. Thomas A. Woodruff, and I have examined several members of the family, and we have both endeavored to obtain all the information regarding the other members that we could. The patient, No. 3 on the diagram, has been seen quite recently, and there seems no question but that the cataract, in his case, was noticed when he was 12 years of age as a "small spot in front of each pupil," and that this spot had gradually increased in size, so that at 40 years of age the lens is almost completely opaque. There is sufficient immaturity, however, to show the character of the cataract, which consists mostly of blurred striæ, radiating from a large central opacity in each lens. In every member of the family about whom we could obtain definite information, the cataract showed itself distinctly in adult life, and the patient complained of "weak"

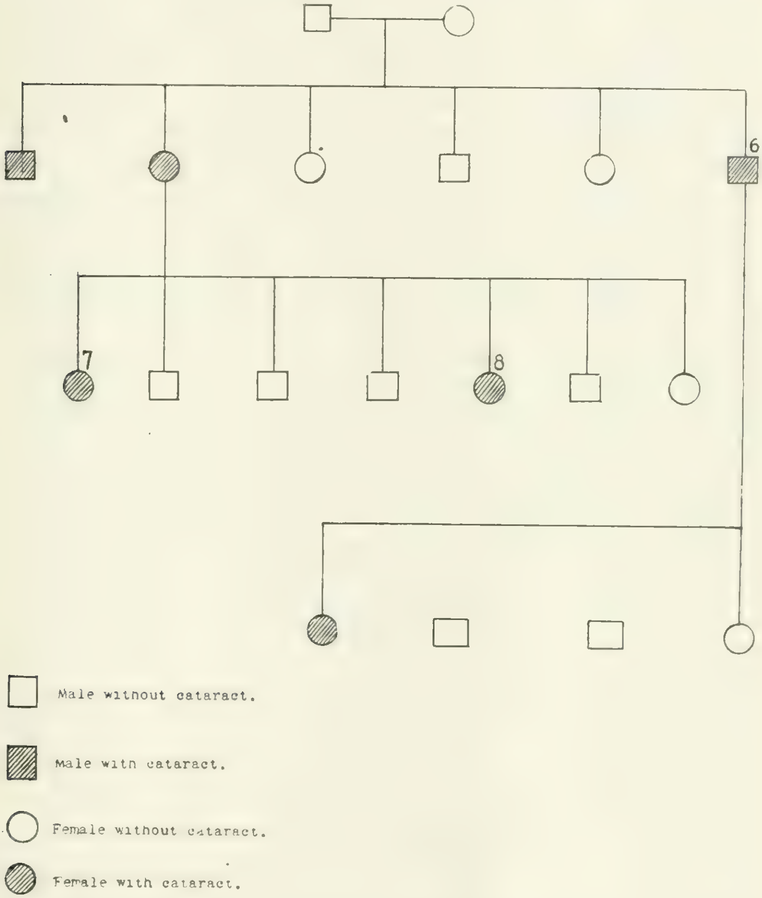


In three generations (of 44 to 48 individuals) 12, and perhaps 14, had cataract, all of the juvenile type. Only "childships" affected by cataract are pictured in this diagram.

sight or "short" sight during, and even before, his school days. "White spots" were also noticed at the pupillary area in each eye by various lay observers, and the diagnosis of cataract was, in most instances, made before adult age by various physicians who were consulted by the patients. In two cases the cataracts were operated upon with success.

In my judgment, the most instructive of all these series is the cataract history of

The Ira Smith Family.—Although the number of cataractous members of this family is not large, there are some peculiarities about the lenticular disease worth noting. In the first instance, the opacities did not develop, or at least did not give any considerable trouble, until comparatively late in life, although they were noticed in both eyes at or about puberty. This is true of every member of the family affected by the disease. In five of the six instances the patients were operated on after they had reached 60 years of age. With one exception, these operations were failures, and, with this exception also, the blindness set in from glaucoma



In two generations of 33 (perhaps 37) persons, six have had cataract of presenile varieties. Only "childships" affected with cataract are pictured in the diagram.

without apparent infection and after the primary wound had healed. Three cataractous eyes were not operated on. Nevertheless in these three instances the patients became totally blind from secondary glaucoma. In three, Nos. 6, 7, 8, there was a temporary return of vision, i. e., the cataractous lens regained sufficient transparency to enable the patient to go about without difficulty. As it happened, I was able to remove the cataract from one of these patients, No. 7, after making a dismal failure with the other eye in the same individual. The operation upon the lost eye went through (in my hands) exactly the same course that the other eyes in the family, previously treated, pursued. In every case the cataract was removed by a competent surgeon who very well knew the peculiarities of the family and took every precaution possible to prevent disaster. I sent both cataractous lenses to my friend, Adolf Alt, of St. Louis, and asked him to examine them. His report corresponds very closely to the observations made upon the cataracts *in situ*. He says: "The lens contained a number of beautiful crystalloid nests, probably lime deposits, base out, apex toward the center of the apparently spherical cavity." Alt regards this condition as rare, since he has never seen but one other specimen which showed similar crystalline formations in the lens, and especially in the nucleus, which otherwise appeared normal. I venture the assertion that the clearing up of the cataract in the three members of the family—transparency that almost always preceded the glaucoma from which the patients became ultimately blind—occurred from the absorption of interfibrillar exudates between the nests of lime-salts, due to active changes (probably associated with swelling), occurring within the capsules.

A more extended history of two of these patients may better serve to emphasize the family peculiarities of these cataracts and to prove the probable hereditary character of the lenticular changes.

CASE 1.—Mrs. C., aged 73, No. 8 on the diagram. Patient has always been more or less short-sighted, and began to notice further loss of vision when she was 20 years of age. Each eye was affected in about the same way, and the loss of sight continued until she became blind at 40 years of age.

In October, 1894, her right eye was operated on for cataract by Dr. F. C. Hotz, of Chicago. The operation was followed, next day, by "inflammation" and pain which continued until the eye was entirely lost. The surgeon told her that the edge of the lid had turned in and disturbed the healing of the wound.

The left eye was operated on for extraction of the cataract in that eye, March, 1895, by the same operator. After the extraction good sight was obtained—that is to say, the patient was able to recognize the faces of friends and to distinguish large objects. The improvement continued until two weeks after the operation, when she could make out the pattern of the carpet in her room and recognize small articles. The operation on the left eye was not followed by pain or discomfort and everything went along nicely until a month after the cataract had been removed, when the eye commenced to water a little, although there was no pain and no decided redness of the eyeball. However, vision gradually diminished in that eye until she was unable to see even large objects.

I examined the patient in January, 1905, and found the following conditions: She is a healthy-looking, well-nourished woman of apparently 60 years of age. She did not complain of any form of ill health whatever. Vision in the right eye was perception of light; in the left eye there was no perception of light. The right eye exhibited a large leucoma with minus tension and all the other signs of bulbar atrophy. In the left eye there was a totally different picture. Here I found a slightly opaque, staphylomatous cornea, with enlarged scleral vessels extending into the superficial layers of the staphyloma. The tension was quite plus 2. The patient declared the eye had been perfectly quiet for several years.

Case 2.—Probably the most important member of the Ira Smith family of cataractous patients is Mrs. B., sister of Mrs. C., whom I first saw when she had reached the age of 61 years. When 25 years old she noticed dimness of vision, first in her left and then in the right eye. At that time she consulted the late Dr. E. L. Holmes, who told her that she had double cataract. Her vision continued to grow worse until she was unable to see even large objects with either eye. She could not count fingers unless they were held a few inches from her face. Within the past two years, however, the patient noticed that the left eye had been "clearing," and she then saw much better, although she had not been able to read even large type. There are no subjective symptoms, except an occasional scleral redness and watering of the eyes, especially if the eyes are exposed to sunlight or heat.

I first examined the patient in October, 1901. She then had vision of 1/10 in the left eye and with plus 4 D. could read words of J. 14. In the right eye she could count fingers at 2 feet, but could not read any of the Jæger types. Pupillary reactions and tension were normal. Her general health was good, and she declared that she was at that time able to make out dimly the faces of her friends at close range and to recognize the furniture about the room. Through the dilated pupil one could see an incomplete cataract on both sides.

The iris cast a shadow upon both lenses and the latter had a dotted appearance as if there were exudates or deposits within the substance of the translucent crystalline, between which there was more or less transparency of its entire mass. No view of the fundus was obtainable.

The patient returned in January, 1905, and assured me that her left eye vision had for a time still further improved, so that with a strong reading glass she was able to decipher words in a well-printed book and was able to sew and to write letters. Moreover, her recognition of faces was complete and she readily told the names of comparatively small objects held up in front of her face. Three weeks before seeing me she had, however, an attack of inflammation in the right eye, accompanied by redness, photophobia, pain and loss of vision. This attack subsided in ten days, the redness disappeared and the sight returned. A recurrence of these symptoms took place a short time before seeing me with, on this occasion, attacks of neuralgic pains about the left eye, which reduced her vision considerably. The sight in the left eye was then finger counting at 18 inches, and there were all the symptoms of an acute attack of glaucoma—tension plus 2, smoky cornea, dilated pupil, shallow anterior chamber, cataract in about the same condition as previously. As the glaucomatous attacks continued I did a broad iridectomy on the left eye in March, after which they entirely ceased. Two weeks after the iridectomy V. L. = fingers at 15 inches.

I saw the patient again on April 10. Tension was normal in the right eye, but had again reached plus 2 in the left with a reduction of vision to finger counting at four inches, with a history of occasional attacks of pain and redness in the eye. I then advised removal of the lens. Shortly afterward I extracted the left lens in its capsule. There was a slight loss of vitreous, followed, however, by uninterrupted healing of the wound. Although there were a few ragged remains of the capsule in the pupil, the patient had fair vision and a quiet eye until the third week after the extraction of the cataract. Secondary glaucoma then set in, and in spite of a sclerotomy and the use of other remedies the eye became totally blind.

The unfortunate experience of this patient and other members of her family in the extraction of their cataracts did not deter either her or myself from attempting the removal of the right lens on January 6 of this year. From a study of her case I concluded that the evil results (generally glaucoma) were in some way connected with allowing the diseased lens, or a portion of it, to remain in the eye after active alterations had declared themselves. I felt convinced, especially after Alt's report of crystalloid cretaceous deposits within the lenticular substance, that possibly these nests and their contents might act as foreign bodies, especially after opening the lens capsule, unless they were entirely removed at the time of the operation.

After taking every possible aseptic precaution I did a preliminary iridectomy in the right eye. As soon as the globe and the neighboring structures seemed perfectly normal, when a test bandage, worn twenty-four hours, was not productive of scleral redness or other suspicious symptoms and a bacteriologic examination of the sac contents was negative, I did the extraction, using at the time (as I often do) the anterior chamber irrigator, thoroughly flushing the eye and taking heed that no tissue tags or soft matter remained within the chamber or between the lips of the wound.

The patient made a most satisfactory recovery. The area of the pupil is now black; the pupil unattached and freely movable. Fundus appears normal. Vision 2/7 and Jæger 1. Tension normal. Field of vision uncontracted. So far there has been no recurrence of the glaucomatous attacks. Knowing the accidents that have happened in the case of her mother, sister and two uncles (and especially in her left eye), I have not yet decided that the patient is free from disturbance by the hereditary enemy of her family. Still, I trust, for the credit of ophthalmic surgery as practiced in her neighborhood, that one eye in the familial series will functionate for a few years longer.

So far as could be determined, in none of the three series just detailed was there a common incident, apart from the occurrence of cataract; no consanguinity of parentage; no marked tubercular, syphilitic or scrofulous habit. None of the cases examined had glycosuria. They were as free of congenital defects as the average patient: those that reached old age seemed to be as well as people of their time of life generally are.

Nettleship disposes of the allegation that familial cataract is one of the results of consanguineous parentage. I may say that, in my very limited experience, I have never had a hint of it except in the secondary cataract of *retinitis pigmentosa,* due to or coincident with the issue of blood relatives.

Literature.—Until the publication of Mr. Nettleship, in his monograph on the subject, of a history of cataract in the Betts family, Berry's account of familial cataract was the most remarkable. Fifty-five individuals, spread over five generations, furnished no less than 20 cases of cataract, mostly presenile. This record is in some respects broken by the story of the Betts family just referred to. A pedigree of 100 individuals during five generations exhibited 30 cases of cataract. In the latter instance every cataractous child had a parent with a cataract. In both these families the cataract developed early in life or was congenital. It went on to maturity in Berry's cases if the patient lived long enough or unless it was removed; in the Betts family it generally remained stationary.

Although Nettleship does not claim to have given a complete literature on this subject, neither he nor any of the other writers on familial cataract have quoted more than one American investigator. Of 57 references in the Nettleship monograph only one of our authors, Stricker, is referred to. I might mention among those articles that foreign authors have failed to consult, a case of familial cataract noted by Howard Hansell.[1] In this instance a large proportion of the descendants of a cataractous greatgrandfather had congenital cataract. One grandmother, in the direct line, had congenital cataract. It was very marked in the "sibling" to which she gave birth. This woman had six children, three sons and three daughters; of these, two daughters and one son had double cataract. Her eldest daughter, with cataract, had three children. The first and third child died in infancy, but had no cataract. The second child, at that time a boy of two years of age, had double cataract.

Three series of familial cataract are also reported by Millikin.[2]

Dr. A. D. Williams[3] describes family cataract under the title, "A Remarkable Descent of Congenital Cataract Running Through Four Generations, Showing 15 Cases in This History of a Single Family."

A. R. Baker[4] gives an account of three brothers with zonular cataract, another brother and three sisters having normal eyes. The parents were cousins; one grandfather had senile cataract. This catalogue by no means completes the cases recorded by American observers, and I have no doubt every fellow of this college could readily add to the list.

Perhaps you have noticed that in the few instances of family cataract that I have just related there is no series of the senile variety. The fact is that although I have on record several families that appear to be examples of a heredity of this character, I can not but regard them as coincidences. It would, indeed, be strange if from the tens of thousands of sclerosed lenses in the country one did not, upon occasion, come across successive childships in which these senile changes had developed. I should be greatly interested to hear from the fellows of the college in this regard.

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[1] Ophthalmic Record, June, 1896.

[2] Amer. Jour of Ophthalmology, March, 1904.

[3] Proceedings of the St. Louis Med. Society, 1881.

[4] Journal of the American Medical Association, September, 1892.

Age.—The age at which cataract occurs in members of a family affected by cataract is generally about the same, although Nettleship makes out a good case for "anticipation" in these instances; that is to say, cataract in a given generation shows itself earlier than in the preceding one. It must be remembered, however, that, other things being equal, the beginnings of cataract are more likely to be discovered the nearer one approaches the present time. This is true, not merely because methods of observation are more precise and medical men are more prone to make careful examinations of eye conditions than formerly, but because the younger patient knows there has been an unusual number of cataractous eyes in his family and is more likely to be on the watch for early signs of oncoming blindness than one whose family eyesight in the past has been fairly good.

Sex.—The sex question is another matter that arises in this connection. Nettleship answers it by showing (1) that family cataract more often descends through the female members, and that (2) hereditary cataract tends to select one sex to the exclusion of the other. He also observes that when cataract affects more than one generation, it matters not from what variety or at what age acquired, it usually descends from parent to child and does not skip a generation.

Few authors have discussed the actual part played by hereditary predisposition in familial cataract, and it must be admitted that therein lies the chief difficulty. What are the principal factors? Do they consist in anomalous development of the nutritional apparatus of the lens system, or are they systemic peculiarities common to members of the afflicted childships? Again, are they organic defects in the lens structure (as is probable in the case of the cataract examined by Alt from the Ira Smith family), and handed down from one generation to another? Precise answers to these questions undoubtedly call for further examinations, not only of the ocular structures, but of the subjects exhibiting hereditary cataract.

TWO CASES OF PLASTIC LID BUILDING.

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BAY CITY, MICH.

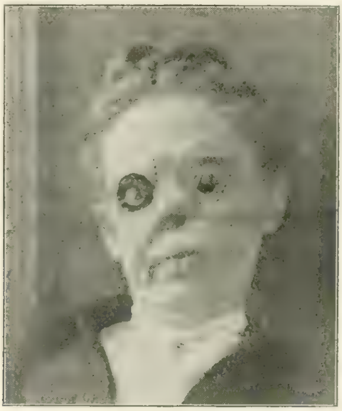
The illustration accompanying the first case shows the pitiable state a woman who is the innocent victim of marital syphilis can get into when to her ignorance is added the malevolent effect of a faith in the Christian Science cult.

CASE 1.—For two years the patient had specific ulceration of the skin of the face, together with intranasal necrosis and suppuration of all the accessory sinuses. On her first visit the skin of the face was found cicatrized from below the level of the mouth up to the hair line of the forehead. The skin and most of the tissues of the lower lid of the left eye were destroyed and there was marked ectropion of the nasal two-thirds. Nothing remained of either lid in the right eye except the mucous membrane, which extended in a continuous red ring around the eye from the corneal limbus to a point almost half an inch below the orbital margin in a downward direction, and in the same way upward to the original site of the eyebrow. Eyebrows and lashes were totally absent on both sides. There was complete eversion of the lids and no trace of fornix or retrotarsal folds remained.

So great was the tension on the conjunctiva that the eyeball was fixed and rotation practically abolished. The cornea was eroded, in a state of general pannus, and a mucopurulent discharge ran from the conjunctiva constantly. Vision was reduced to perception of light only. The eye was exquisitely painful and the patient demanded its removal to stop the annoyance of the constant discharge and the pain. In addition to the conditions described, the patient had an intense ozena and the nasal chambers were filled with crusts and necrosed bone. The tip of the nose had been destroyed and the nostrils fused into one opening, which lay at the bottom of a crater-like depression above the upper lip and was steadily contracting and threatening to close entirely.

After thorough removal of crusts and sequestra it was found that nothing remained of the turbinates or septum, and pus was discharging from every sinus. She was put upon moderate doses of mercury and increasing doses of potassium iodid pushed to as high as three hundred grains a day. The nasal chamber was flushed copiously with dioxygen, followed by a solution of potassium permanganate, which at once checked the foul odor. The outlets of all the sinuses were enlarged until there was free drainage from each. Under this treatment she quickly improved in bodily health, and the nasal chamber became a less virulent culture bed for germs, so that it was less of a menace to any wound made in the attempt to restore the lids.

To form the upper lid a horseshoe-shaped incision, represented by the dotted line in the illustration, was made through the skin, commencing outside the normal position of the external canthus, extending upward an inch and a half above the palpebral ridge, across the forehead to a point above the inner canthus and down to the level of the latter. The flap thus outlined was dissected free down to the attachment of the conjunctiva with the eyeball, leaving the atrophied fibers of the orbicularis intact. Two silk sutures were passed through the flap at the junction of the skin and the mucous membrane at the line representing the former lid margin. The flap, drawn down until the eye was covered, was then stitched to the skin of the cheek. When tied the lower edge of the new lid was as low as the inferior margin of the ectropion of the lower lid. The upper edge of the flap was next stitched to the fibrous tissue below the orbital ridge, so that contraction of the scar above would not drag it up in the future. The denuded surface left on the forehead, about one and a half inches square, was covered with Thiersch grafts taken from the upper inner surface of the arm. The entire wound and eye were dressed with a piece of gauze buttered with sterile borated vaselin and outside this a layer of absorbent cotton sealed to the skin with collodion. On the second day the first dressing showed the grafts adherent and on the fourth the stitches, which were commencing to cut out, were removed. The new lid retracted until its lower edge occupied the normal position for the lid border, leaving the cornea one-half covered except in downward rotation. The profuse discharge was already much lessened. The grafts healed nicely and the result was a lid of good shape and size, which was somewhat controllable by the orbicularis, but lacking the levator.



The lower lid was next built up by a similar procedure to that employed for the upper lid, except that it was not stitched to the skin at the time of the operation, but was anchored instead to position by surgeon's adhesive plaster. The inferior border of the flap was stitched to the fibrous tissue at the orbital margin without cutting any of it away, and this proved to be an error, for in a few weeks after the operation the contraction of the graft and atrophy of the transplanted tissue caused eversion of the lid border, so there was not complete apposition to the globe. This necessitated a second operation, when considerable tissue was removed after the flap was lifted and the edge was stitched to the periosteum. The lid also had to be shortened and stitched to the skin beyond the external canthus to prevent the outer end from everting. One operation was sufficient to restore the lower lid of the left eye satisfactorily.

For a year the right eye, which was fairly protected by the new lids, gave little trouble; the cornea cleared and healed; the patient was fairly comfortable and the cosmetic result was excellent, although there was no improvement in the vision. The lids did not close in sleep; in fact, although more mobile than might have been expected, the patient could not entirely close the eye and the conjunctiva became reinfected and discharge again profuse. The cornea ulcerated and the patient suffered for months so much pain and annoyance that she demanded to have the eye removed and the lids closed up, not being willing even to try to use an artificial eye. Accordingly I enucleated the eye, freshened the margin of the lids and closed them up to within three-eighths of an inch of the inner canthus. This space was left open to provide drainage from the lachrimal gland and conjunctiva. The cosmetic result is not beautiful, but the patient is comfortable and fully satisfied.

Undoubtedly the condition and appearance are vastly better than they would have been had the eye been removed at the first operation, for it would have been almost impossible to cover the socket satisfactorily with skin had the lids not been first brought down, as they were, by plastic methods. Even had it been possible to secure as good results in the first operation it seemed worth while to try saving the eye, and had the patient not lived at a distance, where she could not have competent medical service, I should have refused to remove it when I did.

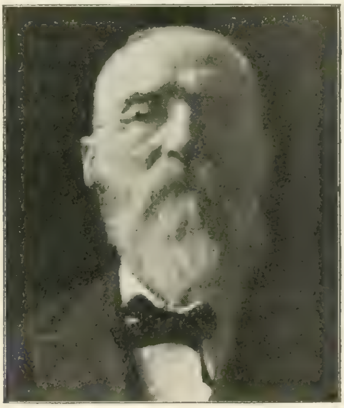
Case 2.—This case is illustrative of what may be accomplished with a pedicle flap in restoring a lid removed for disease.

The patient, a man fifty-four years of age, presented himself in March, 1895, with a growth under the upper lid of the right eye, which had produced a slight congestion and lachrimation for a few days only. On eversion there was found near the center of the outer third of the tarsal cartilage a pediculated growth of the size of a hemp seed, which looked as if it were granulation tissue formed during the healing of a ruptured meibomian cyst. This was snipped off and before healing had occurred the growth returned as large as before.

Under cocain anesthesia the outer end of the tarsal cartilage and overlying conjunctiva were dissected free and removed. So far as gross inspection could determine, the piece removed contained all the diseased growth; yet, before healing was half completed, granulations were springing up along the edges of the wound. The piece removed was examined by the pathologist at the University of Michigan, Dr. Heneage Gibbs, and pronounced a rapidly growing angiosarcoma.

The malignancy being established by both the clinical history and the histologic examination, nothing but radical removel promised relief.

Accordingly on May 6, seven weeks from the time the growth was first discovered, the following operation was performed: The eyelid was cut across at the junction of the inner and middle quarters of the tarsus and all the tissues from this line out to the orbital edge, together with the outer third of the lower lid, removed. Upward the incision reached to the eyebrow, and after the lid was removed the cellular tissue, the orbicularis muscles, the lachrimal gland and the orbital fat were cleared out back to the equator of the eyeball. An oval skin flap was next outlined in ink on the temple, two and a half inches in the vertical and one and a half in the horizontal diameters. After dissecting this free down to the level of the canthus, leaving it attached by a pedicle half an inch broad, it was turned toward the nose and stitched in place of the lid removed. To close the gap on the temple, extensive undermining of the skin of the forehead and temple was necessary, and the tension of the sutures which drew it together was considerable. They held without cutting out and the resulting scar is scarcely discernible.



To prevent adhesion of the new-formed lid to the eyeball, a broad Thiersch graft was taken from the arm and spread upon the raw under-surface of the lid, with its epithelial surface next the eye. The graft took well and only a small synechia was formed, far back on the eyeball. This was sufficient, however, to restrict motion somewhat, and for a short time lateral diplopia was complained of, but this gradually disappeared, partly by the improved motion and partly by suppression of the image.

Two or three polypoid granulations appeared during the healing, which caused apprehension of return of the growth, but as they did not recur after removal they were probably benign. The loss of the lachrimal gland produced a distressing dryness that lasted several months, but the mucous glands seemed ultimately to assume the function of the missing organ, and of late years there has been little trouble from that source.

It is now over ten years since the operation was done; the patient is in excellent health and there is no sign either of return or of metastasis of the growth, so the case can, without doubt, be considered cured. The cosmetic effect, as can be seen by the illustration, is excellent, and it would be hard to select any method else which could give a better.

GLIOMA OF THE RETINA.

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KEOKUK, IOWA.

Schöbl defines glioma of the retina in general terms as a malignant intraocular tumor found in infancy, which starts from the retina and after a period of intraocular growth leads, through increased pressure to ectasia (less frequently to iridocyclitic processes, with temporary shrinkage of the eyeball), piercing the eyeball, with a constant tendency to local relapses and metastases and finally causes the death of the patient in from two to three' years time.

Its synonyms are neuro-epithelioma (Wintersteiner), gliosarcoma (Virchow), glio-angiosarcoma and tubular-gliosarcoma (De Gama Pinto).

PATHOLOGY.

There are several exhaustive monographs on the pathology of this tumor, and it is hardly within the scope of this paper to dwell at length upon it, only to say that the first good description of glioma was given in 1809 by Wardrop. It was based on seventeen cases, observed under the name of fungous hematodes, the malignancy of which he well knew. He also understood the nature of metastases in the skull and even the origin of the growth in the retinæ. The work of Virchow, Hirschberg, von Graefe and others has proved that the explanation given by Wardrop was the only correct one and that intraocular gliomata spring from the retinæ. As their special origin shown by Wintersteiner's investigation the inner granular layer was usually mentioned. The pathologic histology of the growth has been worked out by Virchow, who in 1853 inaugurated the doctrine of the neuroglia and at present his glia is recognized by probably all histologists. Microscopically the tumor is seen to be composed of small round cells and a soft basement substance. The cells consist of a large nucleus surrounded by a very scanty amount of protoplasm, which in many spots possesses minute processes. The interstitial substance in which the cells are imbedded is a half fluid, so that the whole tumor is of a very soft consistence. Glioma, in contradistinction to intraocular sarcomata, is never pigmented.

When spreading into choroid and sclera and beyond the eye, gliomata may sometimes change their character. Berthold was the first who asserted that gliomata may assume a sarcomatous character after having spread into the choroid and that this membrane, irritated by the entering of the glioma cells, furnishes the sarcomatous element. In a reverse way it may occur that sarcomata of the choroid take on a gliomatous character. Schöbl reports a remarkable case of gliofibrosarcomyoangioma, which confirms the statement that the character of the tumor often depends on whether or not it has invaded other tissues.

FORMS AND FREQUENCY OF GLIOMA.

Glioma may develop under two forms, as circumscribed glioma and as diffuse glioma. The former, which is found in most cases and which grows from the retina as a tumor, may either extend forward into the vitreous humor (glioma endophytum) or pass backward into the subretinal space (glioma exophytum).

Concerning its anatomic growth, Schöbl distinguishes three forms:

1. Simple Glioma of the Retina.—This name he gives to those forms in which, as is usual, regressive metamorphoses occur very early and which, starting in the nucleus or in the protoplasm, or in both, produce nuclear death in the cells.

2. Glioma Retinæ Luxurians.—This is a rare group of gliomata, in which for a long period regressive metamorphoses are not observed or concern only very small portions of the growth.

3. Crypto-Glioma of the Retina.—At first such cases grow after the first type. They then undergo regressive metamorphosis; after

a varying interval the disseminated patches in the choroid or optic nerve or in both begin to grow again. They then fill the eyeball, increase its size again, break through it and lead to the well-known end.

As regards the *frequency* of the glioma, fortunately it is very rare. Twenty-two of the great clinics of the world, reporting 498,057 patients, record 203 of glioma—one-twenty-fifth of 1 per cent., one case of glioma out of every 2,500 cases of diseases of the eye. The percentage of the involvement of both eyes is very large. Out of 87 cases it occurred sixteen times at birth, or in 18.4 per cent. Deducting these congenital cases from the 87 cases, it was found that both eyes were involved in 65 cases out of 71 during the first three years of life. Another point of interest is that the second eye appears never to have been found to become involved by an extension of the disease along the optic nerve and through the chiasm from the first eye. When both eyes are affected the disease always develops independently in each eye. The influence of heredity has not been demonstrated, but Dean[1] reports a case where there was consanguinity between the parents.

SCHÖBL'S DIVISIONS.

Most writers divide the disease into three stages of development: (1) Period of intraocular growth without increased tension or inflammatory symptoms; (2) glaucomatous or inflammatory period, which ends with rupture of the globe; (3) the period of extraocular growth and metastasis.

Schöbl divides it into six stages, according to the age of the glioma.

The initial stage, which he also terms the ophthalmoscopic one, since the diagnosis can only be made by means of the ophthalmoscope, is observed only in extremely rare cases. The reason for this is that the infantile patients do not give any subjective signs as to the positive scotoma due to the tumor.

The second stage is that of the amaurotic cat's eye. In this the exterior of the eye still appears free from irritation, yet in a certain direction a pupil reflex can be observed, followed later by a manifest white or whitish-red or whitish-yellow reflex. At this stage the anterior chamber is shallow. The pupil is somewhat dilated and the iris is sluggish. Intraocular tension is generally normal, while vision is abolished or reduced to perception of light.

The third stage is that of glaucoma or iridocyclitis. As the glioma grows farther into the vitreous chamber intraocular tension gradually increases and the clinical picture of the glaucomatous stage results.

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[1] Journal of the American Medical Association, Sept. 12, 1903.

The fourth stage is that of ectasy followed by atrophy. In the rare cases in which, instead of an increase of tension, iridocyclitis develops, the eyeball may for a time shrink instead of becoming ectatic. In this condition the picture of progressive bulbar atrophy or anterior or total phthisis of the eyeball will be seen.

Perforation of the eyeball by the gliomatous mass constitutes the fifth stage. When the globe has been filled with gliomatous tissue and its membranes have mostly atrophied and disappeared, the space becomes too small for further growth of the mass, and it begins to perforate the eyeball and to grow exophthalmically in different ways.

The sixth stage is that in which the growth has escaped from the eyeball. As soon as the mass has pierced the eyeball it extends very rapidly, spreading heteroplastically from tissue to tissue with which it comes in contact. The metastases of glioma in distant organs are produced by the agency of the blood vessels. In 1871 Bizzozero found glioma cells in the blood vessels in a case in which there was metastasis in the liver. Similar reports have been given by Thalberg, Waldeyer and Landesberg. Metastases are more frequently found in the parotid and submaxillary glands; then in the mediastinal mesenteric and retroperineal glands, the bones of the skull, the sternum and the ribs. Other forms of metastases have been seen in the liver by Knapp and Rusconi; in the kidneys and the ovaries by Heymann and Fiedler.

DIAGNOSIS.

As regards diagnosis, the following conditions, according to E. T. Collins, may be mistaken for glioma: Persistence of the posterior part of the fetal fibrovascular sheath of the lens; masses of tubercle in the choroid; inflammatory or purulent effusion into the vitreous following retinitis or cyclitis, usually with the detachment of the retina. In glioma the anterior chamber is uniformly shallow; in inflammatory exudates into the vitreous the chamber is deepened at its periphery (retraction of iris), and shallow at its center (bulging of pupillary border). Synechiæ are occasionally present in glioma. Tension is usually increased in glioma, but may be minus; rarely is the tension elevated in pseudoglioma. Sarcoma of the choroid is differentiated from glioma by the fact that the former usually occurs at a later period of life and that in the earlier stages of each affection the ophthalmoscope findings are different. In glioma the tumor is seen to involve the retinal structure, which does not, as in sarcoma, merely act as a covering to the globe.

PROGNOSIS.

The prognosis, as is well known, is unfavorable, both as regards the return of the growth after removal and the life of the patient. Death may result in any of the following ways: (1) Involvement of the brain; (2) cachexia; (3) pressure of the growth on the medulla oblongata; (4) suffocation from extension of the growth into the pharynx and larynx; (5) pyemia, or septicemia with metastatic abscesses. Still a number of recoveries are on record, and an opinion must be based on the extent of the disease, the condition of the optic nerve being the most important element in the prognosis.

TREATMENT.

The treatment, of course, consists in thorough enucleation with division of the optic nerve as far back as possible. Any suspicious tissue in the orbit must be sacrificed. When the eyeball is filled with gliomatous tissue and it may be suspected that dissemination into Tenon's space has taken place, the extirpation of the eyeball, together with all the adjoining orbital tissue, is indicated. When there is a fundus exophthalmos, or when the gliomatous tissue has extended into the orbit, exenteration of the orbit must be performed. In cases which have progressed further, removal of the eyelids must be added to the radical procedure. Eventually it may be necessary to remove some parts of the contiguous bones followed by active cauterization. When the neoplasm has entered the neighboring cavities, especially the cranial, and produced cerebral or cachectic symptoms, operation is contraindicated. In inoperable cases, which must be left to their fate, symptomatic treatment may be employed to ease the patient's suffering. Antiseptics and narcotics are here of value.

CASE REPORT.

In reporting the following case the author desires to say that the history was somewhat meager.

H. E., aged 6 years, was the youngest son of a family of five. Brothers and sisters were healthy, and parents healthy, but well advanced in years. There was no history of any eye trouble in any member of the family. Parents stated that they first noticed trouble in the child's eye when he was about 2½ years of age. The yellow reflex was first noticed. The eye would be worse at times and exophthalmos would be more apparent. V., *nil.* They had never consulted a specialist, but had had the boy under the care of a quack for a time, who prescribed an eye wash and assured them that the boy would probably outgrow it. When first called, March 12, 1903, I found the little patient suffering great pain. He would bury his head in the pillow or in his mother's lap and scream. The pain seemed to come in paroxysms, and this had been going on for several days. The child had taken very little nourishment in the meantime, although he was a strong and vigorous little fellow. There was pronounced exophthalmos at this time, and the eye had the appearance as if it might burst. I made a diagnosis of glioma in the glaucomatous stage and advised immediate removal, to which the parents consented. A thorough enucleation was performed and the nerve divided as far back as possible. There was no suspicious tissue in the orbit, the tumor being apparently confined to the eyeball. The parts healed kindly and the patient made an uneventful recovery. I predicted a return of the tumor. The patient has not been seen by the writer since the operation, but on April 14, 1904, the family physician reported that there had been no return of the growth and that the boy is healthy in every way.

CASES IN IOWA.

Realizing the rare occurrence of these cases, I thought it might be of interest to collect the number occurring in the practices of the eye surgeons of the State of Iowa, together with their histories, so, with this end in view, I sent a circular letter to each one, asking for such data, and succeeded in collecting reports of nine cases.

Dr. Gratiot, of Dubuque, reports one, operation, recovery. Dr. Pierson, of Des Moines, one, operation, child died, probably from metastatic involvement. Dr. Park, of Sioux City, one, operation, no report as to result. Dr. Dean, of Iowa City, one, no operation, child died. Dr. Young, of Burlington, four, only one operated upon, recovery. Dr. Hobby, Iowa City, one, no further report. Dr. Dean, of Council Bluffs, one, no operation, patient passed from observation. Drs. Gratiot, Pierson and Dean kindly furnished me complete reports of their cases, and I will give the main points in connection with them.

Dr. Gratiot's Case: The patient, M. W., aged 2½ years, was first examined on Aug. 2, 1903. In June his parents had first noticed he was blind in O. S. Child had always been in good health. There was slight external deviation of affected eye; otherwise external appearance of the eye was normal. Pupil was normal in size and reacted to light. Under homatropin mydriasis in the nasal half of the vitreous chamber could be seen a large mass filling one-half the globe. It presented a white uneven surface, with several small blood vessels distributed over it. Tension plus. A diagnosis of retinal glioma was made. On August 10 enucleation was performed, and patient made an uneventful recovery.

Dr. Pierson's Case: Patient was a child, 18 months of age, with a history of some disturbance of the eye extending over a period of six or seven months. When patient was first seen, the globe had ruptured and the tumor extended one inch before the plane of the face. Exenteration was performed, but the child died without the doctor's observation about four months later, probably from metastatic involvement.

Dr. Dean's Case: This is interesting because of consanguinity between the parents and that it was bilateral. Patient was a female child, aged 6 months. Parents were healthy. No history of any eye trouble in the family could be elicited. Parents were first cousins. They said the right eye first began to increase in size, and a few weeks later the left began. The child apparently could not see. Pupils were dilated; would not react to light. Tension in right eye plus 2 and in left plus 1; both eyes were enlarged, the right the more. Lying behind the iris in each eye could be seen a large tumor. Diagnosis, bilateral neuro-epithelioma. Four months after child was seen it died.

The infrequency of these cases makes them interesting, and their fatal termination in every instance, if neglected, illustrates the value of an early diagnosis coupled with active surgical intervention.

EXTRACTION OF CATARACT IN ITS CAPSULE.

REPORT OF CASE.

WALTER R. PARKER, M.D.
Professor of Ophthalmology, University of Michigan.
DETROIT, MICH.

The results obtained from extraction of cataracts in their capsules of Major Smith, of India, being better than any I have been able to obtain by the method most used in this country, I determined to give it a trial and here report my first case.

Case Report.—A. L. R., male, aged 58, American farmer, presented himself at the University clinic for operation for cataract. His general health was perfect. Eyes, other than cataractous, apparently healthy. Tn. iris active; projection and perception perfect. Vision O. D., light perception. O. S., 15/200. History of failing vision, O. D. for four years, O. S. two years.

March 1, 1906: The usual preparation for extraction having been made, the lens in its capsule was extracted after the method described by Major Smith. A high corneal incision (midway between upper pupillary border and limbus) was made. With a large squint hook, pressure was made on the cornea below, couterpressure above with spatula. The iris seemed rigid, or I was too timid and failed to deliver the lens. An iridectomy was made, after which pressure was applied as before. The lens immediately took a position with its long axis vertical, the upper edge presenting in the wound, but not until the pressure had been exerted for several seconds did the attachments give way, after which the lens in its capsule was delivered without loss of vitreous. The toilet of the wound was made in the usual way, atropin was instilled and the eye closed.

The exact length of time the pressure was applied before the lens was delivered was not taken, but it must have been from forty-five seconds to one minute.

March 4: Wound closed, pupil dilated, eye quiet, atropin instilled.

March 11: Very slight reaction.

March 15: V. S. —10 equals 15/100. Patient was discharged from hospital, to return in one month for refraction.

The result in this case certainly confirms all claims made by Major Smith.

CURIOUS CASES.

DR. E. H. OPPENHEIMER,

BERLIN.

A few days ago a colleague described to me some queer cases he had seen that reminded me of the fact that I, too, have treated a number of curious cases in the course of the last two years in my dispensary. A short account of some of these cases may perhaps also interest American readers.

1. About a year ago a midwife brought a 1-day-old baby to my dispensary, saying that she was not able and was afraid to open its eyes and that it surely had blennorrhea because its eyes were swollen badly. After applying some force, both lids snapped open and the eyes proved to be normal. The midwife was very much astonished when she learned that the eyes were normally glued together at birth and separated later on by the action of light reflex.

This is the first time that I ever was called to treat such a case. Upon after-thought I considered it a pity that Nature was not in all cases so kind to mankind as to keep the eyes closed a whole day after birth. For then there would be less blenorrhea neonatorum than there is now in Berlin.

2. Two years ago another child, 1 day old, was brought to me to have its blennorrhea treated. I applied 2 per cent. nitrate of silver to one eye and gently everted the other upper lid, when suddenly a stream of blood came pouring out. I applied cold

compresses about one-half an hour, but the bleeding continued. As I did not have time to wait till the hemorrhage ceased, I told the woman to take the child home and to apply compresses there and to return the following day. The next day she failed to return, and subsequently the mother told me that they were compelled to take the child to a clinic in the afternoon, as the blood flowed down the cheek for hours after leaving me. Neither father nor mother were bleeders. Bleeding in cases of blennorrhea is very common and natural, as we all know; but usually the hemorrhage is a trifling matter. In this case, I believe, some superficial blood vessel must have been injured by the eversion of the lids.

3. In the last few months I treated two cases which prove how dangerous the laundry trade may be to the employés. A woman who dyed the curtains in a steam laundry woke up in the morning with a red and tremendously swollen eye, but with no pain whatever. Her companion brought her to me, because she looked so unsightly. The bulbar conjunctiva was covered with a thick red and yellow crust (membrane) so thick that the eye could not be closed, which could not be removed. The cornea luckily was free and also the palpebral conjunctiva. Consequently this case of traumatic croupous conjunctivitis healed in about 3 weeks. It was caused by some of the dyeing ingredients (phosphin, vesuvin, perhaps ochre) which the patient had inadvertently introduced into the eye. As is a well-known fact, aniline colors, being severe caustics, usually prove disastrous to the eye.

From the same laundry another patient came later on with a blennorrhea. Although immediately treated, on the third day corneal infiltration set in, and 2 weeks afterward a huge staphyloma was the result. In a week or so I shall have to eviscerate the eye. The etiology of this blennorrhea is certainly, to my mind, infection from the laundry (neither the man nor his wife is gonorrheic).

Another case of blennorrhea (a man of 25 years) ended the same way. I had treated this last case with argyrol (25 per cent.) which I had ordered from America, because it had been so warmly recommended to me by Americans.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, APRIL, 1906. VOL. XV. No. 4, NEW SERIES.

Editorials.

THE PROGRAM OF THE SECTION ON OPHTHALMOLOGY, AMERICAN MEDICAL ASSOCIATION.

We feel fairly certain that contributors to the above program will sympathize with the attempt of the officers of the section to bring to a successful conclusion their share in the Boston meeting, arranged for June 5-8, 1906. They have been asked, and practically every member on the list has complied with the request, to send in their papers to the secretary not later than April 10. The purpose of this early presentation of papers is to give an opportunity to print and bind them all in one book, so that they may be distributed to each member of the section who may read them before the session opens. Only the secretary and the other officers who have been engaged in this task can appreciate the amount of work it has involved, and it rests with the section members to loyally supplement their efforts.

A moment's consideration of the scheme will be sufficient to realize its excellencies. In the first place, such a scheme promises to each member a careful consideration of the paper (or papers) in which he is particularly interested, instead of obliging him to listen to its reading in the confusion and uncertainties of the open meetings. It occasionally happens that an excellent paper is read by the author in such a manner that nobody who sits more than a few feet away can hear or understand him. Again, how often does it turn out that the abstract, which is supposed to indicate the contents of the paper, is so inadequate that only the merest outline of the subject can be obtained from its perusal? Moreover, the discussion—generally the most valuable part of the proceedings—is often cut short because of the few minutes at the disposal of the chairman, owing chiefly to the amount of time consumed in the mere reading of papers. The scheme proposes that every member shall have ample opportunity to study the papers (or such of them as specially interest him) at his leisure, so that he may consult illustrative histories from his case books, that he may duly consider the questions involved, and may generally prepare himself to take advantage of the meeting. How much more valuable to the member will such a program be than that to which one listens all unprepared or hears partially or indistinctly!

The above scheme is by no means a new one, but it is probable that no society has hitherto carried it out in its entirety. Both in this country and abroad there have been abortive efforts and doubtful successes in this direction. but it has remained for the officers of the ophthalmic section to carry, we believe, to a successful issue a scheme comprising every paper on the list. While it is quite true that the proposition must be regarded as experimental, yet it is a very interesting and valuable experiment. Whether it proves a complete success or not it was well worth the making and we congratulate Chairman Taylor, Secretary Bulson and the able executive committee on the conception of the idea and the enthusiastic manner in which it has been so far presented to us. We hope that every section member will carefully read at least those papers that seem to be of particular interest to him, will investigate them fully and come to the meeting prepared to discuss them in an intelligent and helpful fashion. C. A. W.

COMMISSIONS, COLLUSIONS AND CONSPIRACIES.

The definitions of these terms are, according to the Standard Dictionary: Commission—"Compensation of an agent." Collusion—"Secret agreement for a wrongful purpose; fraudulent coöperation." Conspiracy—"An agreement between two or more persons to do an evil act in concert." It is polite and considerate to use the least disagreeable term in speaking of personal shortcomings, and the scoundrels who disgrace the medical profession (that is, doctors with an imperfectly developed moral sense) have feelings, too, although they may be somewhat blunted in certain directions. Still we should not permit politeness to obscure our perception of the fact or to mislead us as to the real significance of any class of transactions.

An "agent" may be in every way an honest, worthy man, and the payment of his commission an honorable transaction. The book agent who glibly expatiates on the merits of the particular work he is canvassing for may be a bore without at all being a rascal. I may buy the book knowing that part of the money I pay will go to him for talking me into buying it. I may even (on rare occasions) be thankful to him for having called my attention to its merits. But I know that he is paid to praise his wares, and expect to judge for myself how much of weight should be attached to his statements.

If, however, I went to a friend for advice as to what book on a certain subject I would buy, or if I retained an attorney to look into the value of a certain proffered investment, and then found that my friend or attorney was simply advising me to buy where he would receive a "commission" on the sale, I would resent such collusion. If one doctor wishes to act as an agent for another, and the relation is public and clearly understood, it is as proper for him to do so as to take a salary from a proprietary medicine house for his services or become the medical catspaw of a non-medical advertising quack. Yet even then the business of steering patients seems more appropriate for a train porter or a hotel clerk; and where the runners for doctors and medical institutions have become a nuisance they have been suppressed by special legislation, as at Hot Springs, Ark. The reason that such special legislation is not often required is that such a disreputable business rarely flourishes in public.

But for one medical man to enter into collusion or conspiracy with another for the purpose of steering patients to a particular surgeon or oculist, or to have patients brought to him in consideration of money paid therefor, is distinctly criminal. It is on a level with fraud, forgery, bunco steering or any other plan of obtaining money by false pretense, and the conspirators are proper subjects for the grand jury or the penitentiary. Secret commissions violate the fundamental relation of physician and patient. The patient coming to his physician for professional advice has the right to expect that it will be honestly given with an eye single to the patient's best interests, and not that the patient's interests will be betrayed by the desire of the physician for "graft." That they are so betrayed is not merely a matter of obvious inference; it is fully demonstrated. An ophthalmic surgeon was recently asked to give a "commission" on cases to be referred to him, and the request was accompanied with the voluntary statement that the doctor who made it had been sending his patients to another man and receiving a "commission" therefor, but had never had much confidence in the skill of the man to whom his patients were sent. Here was a conspirator frankly admitting his betrayal of his patients. But even where the attempt is made to give good reasons for a bad practice the tendency is as directly corrupt as the giving of bribes or their acceptance by jurymen, aldermen or voters.

The secret "commission" is a crime, probably already punishable by laws relative to conspiracy and false pretence; but it might be made the subject of special legislation. It certainly is time that every unthinking, impecunious, greedy person who has gotten into the medical profession should have his attention clearly called to the real character of such transactions. Furthermore, the profession must protect itself against these criminals by visiting on them, both bribe-givers and bribe-takers, the same ostracism that it would give the known abortionist or fake operator.

If a clear stand is not taken in this matter we can expect the kind of proposition given below to become common. At a recent meeting of the Colorado Ophthalmological Society three of the members called attention to letters of this kind which they had received from the same optician. It was headed, —, —, ——, "Oph.D., Scientific Refractionist," and read as follows:

> "Dear Sir:—I have a case of divergent squint that I think will have to undergo a graduated tenotomy of the right eye.
>
> "He only has an error of refraction of —.50 ax. 180, O. U.
>
> "I want to make arrangements with one of you doctors in Denver to do my eye surgery for me, and want to know what you would charge me to do the above work. I always had Dr. —— of Omaha, Neb., do this work for me while I practiced in Iowa, and he made me very satisfactory prices. Awaiting your immediate reply, I am, yours very truly,
>
> ————————, Oph. D.

The Omaha doctor mentioned is a gentleman of good professional standing, and the above allusion is doubtless intended to give an utterly false impression of the relations he sustained to this "scientific" grafter. But the occurrence suggests two things: First, the natural degenerative changes that would occur if the practice of giving commissions became general; second, the care one must take to avoid any such connection with the camp followers of ophthalmology, as might be made to give apparent support to such lies as it might suit their purpose to tell regarding their relations to us.

Correspondence.

PREVENTION OF OPHTHALMIA NEONATORUM.

BUFFALO, N. Y., April 16, 1906.

Editor Ophthalmic Record:—In the current number of the *Journal of the American Medical Association* the writer has outlined a plan which, if effectively executed, would practically eliminate ophthalmia neonatorum as a productive cause of infantile blindness. An unusual combination of circumstances as there shown makes the present an exceptionally opportune time for making such a plan effective.

It consists, in brief, in utilizing the perfect organization of the association to bring to those having to do with the parturient woman at once the advice necessary to recognize this dangerous disease and the remedy so nearly specific in preventing or combating it.

It suggests the appointment of a committee by and under the authority of the association, by whom the details as to method and matter shall be arranged and through whom a concerted plan of campaign may be carried out in every state.

The purpose of this communication is to supplement the general thought there outlined by some further detail as to method, and to urge upon the members of the ophthalmologic section their indorsement and support of the proposition.

It was proposed in the former paper that the committee to be intrusted with the execution of the plan should consist of three members of the association, one an ophthalmologist, one an obstetrician and the third a sanitarian. A subcommittee, associated with this smaller body, should consist of the president and secretary of each of the state societies throughout the country.

The measures then which might be determined upon could simultaneously be carried out through the efforts of these officers in the several states and a concerted movement would take place throughout the United States.

The plan proposed provides for the assumption on the part of each state of the responsibility of the free distribution through the state health boards of some form of silver salt determined upon, together with ophthalmia cards describing the disease, its dangers and prevention.

The cost would be so much less in employing these preventive and protective measures than the burden imposed upon the state in caring for those who unnecessarily become blind that there should not be the slightest difficulty in securing public coöperation.

It would probably be necessary to secure in every state legislation requiring the state health officer to have ophthalmia neonatorum placed on the list of reportable communicable diseases and providing an appropriation for the gratuitous distribution through each local health board of the chosen remedy.

This would probably be silver nitrate, as with many ophthalmologists the feeling prevails that this is more efficient, as it certainly is more permanent (when sealed in non-actinic receptacles) than the newer forms of protargol or argyrol. It is also much less expensive.

The single objection to it is that in exceptional cases the reaction is severe and in two or three cases of the myriads in which it has been used, conjunctival hemorrhage has followed its employment. Even this would be obviated if a 1 per cent. instead of a 2 per cent. solution were used, and by many ophthalmologists the weaker preparation is deemed equally efficient.

Through the health boards, too, cards should be posted in every hospital taking maternity cases urging the employment of the Credé method and providing the solution to be used as a germicide. The cards used for midwives should describe simply and in several languages—as most of these women are foreigners with little knowledge of English—the symptoms and character of the disease and the necessity of using the preventive solution. Reports should be exacted from them as to the immediate and final condition of the eyes of the children born under their ministrations.

Such a movement inaugurated by the association and simultaneously carried out under its direction would have the effect of immediately lessening the enormous annual amount of infantile blindness.

It could be accomplished easily, inexpensively and effectively. It requires simply that initiative action be taken by the ophthalmologists. The writer asks, therefore, for the support of the resolutions which will be presented before the section at the meeting in Boston providing for the appointment of the committee to carry out the proposed movement. F. PARK LEWIS.

154 Franklin Street.

Reviews.

OCULAR ACCIDENTS CONSECUTIVE TO PROTHETIC INJECTIONS OF PARAFFIN IN THE NASAL REGION.*

PROFESSOR ROHMER,

NANCY.

[Reviewed by C. H. Beard, M.D., Chicago.]

Rohmer refers to the frequency of accidents in the general use of this substance to replace tissue and notes the fact that they were relatively more numerous in the beginning of the employment of Cernusy's method than they are at present. He does not offer an opinion as to whether it is the dangers of the procedure, operating to deter surgeons from practicing it, or whether more extended experience, with its lessons of precaution. has reduced the percentage of casualties. Most likely both are to be thanked. He mentions the commonest accident—that of pulmonary embolus—then proceeds with the subject of his paper. He affirms that there is one anatomic region where we often have occasion to make such injections of vaselin-paraffin, and where the accidents at a distance affect another alone and present a clinical picture different from that which one sees in any other part of the economy, that is, the face, and particularly the nasal portion thereof.

In these cases, Rohmer says, it is always the eye that is interested. He might better have said *most* interested, for we know, from certain published instances, that in these cases also the lungs are liable to suffer, and that even sudden death has occurred from a cerebral infarct. He cites a case of total blindness of the left eye from this cause that had recently come under his observation. It was that of a woman of 42 years, who had engaged the services of her physician to build up the bridge of her nose—lost from syphilis. At the fifth or sixth injection there came a sudden sharp pain in the eye, with instant loss of vision, total and permanent. The pain lasted several days and the lids became red and swollen. Rohmer saw the patient about one year after the accident. Ophthalmoscopic examination of the eye was entirely practicable. Enormous plaques of old hemorrhages in the vicinity of the papilla and macula, interspersed with spots of atrophic choroiditis, and atrophic vessels hardly visible in the midst of the anatomic disorder in the fundus, gave incontestable evidences of an obstruction of the central vessels of the optic nerve. In addition, however, there were unmistakable signs, in both eyes, of syphilitic choroiditis.

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* **Annales d'Oculistique, September, 1905.**

Attention is then called to three important points in this connection: (1) The frequency of ocular accidents in conjunction with such injections about the nasal region. (2) The true nature of the lesions as they concern the eye. (3) The technic of the injections. As to the first an appalling list of cases of sudden total monocular blindness is cited from the literature. As to the second, most of the observations have been insufficient upon which to base a positive diagnosis. A number have called the lesion paraffin embolism of the central artery of the retina, and explained its presence by a perforate foramen ovale (persistence of the opening of Botal between the ventricles of the heart). This is not so far-fetched when it is estimated that in one of every five adults the upper part of this window remains open. An oculist who saw the case here in question the next day after the accident pronounced it embolism of the central retinal artery. Rohmer, however, believes that all signs point to thrombosis of the ophthalmic vein and its branches and doubts the arterial embolism theory. Both the early and later symptoms in this and other cases indicate clearly, to his mind, thrombosis. The pain, the swelling of the lids, the exophthalmos, the vast retinal hemorrhages, the tortuosity and engorgement of the retinal veins, the central choroidal disturbances, the edema of the optic nerve—do not constitute a picture of arterial embolism. He even questions the possibility of the latter under these conditions. Rohmer inclines to the belief that the melted paraffin is injected directly into a branch of the angular vein and thence passes through one of the channels of communication or anastomosis with the facial, at the internal angle of the lids, into the ophthalmic vein before hardening into a mass—there to set up the disturbance. With regard to the third point the author aptly remarks that if the dangers of emboli are really so great, it were better to renounce the practice of prothetic injections of vaselin paraffin entirely than to expose the patient to the chances of incurring death or blindness.

To prevent these complications three essentials are given, viz., the degree of fusion of the paraffin employed, the quantity injected at one sitting, and the isolation of the operative field. The melting point should not be higher than 41 to 42 C. (105.8 F. to 107.6 F.) so that if it should enter a vein it will at once solidify in one mass and neither be carried too far nor form detached fragments. Other disadvantages of high melting paraffin, say of 60 C., to which attention is directed, are risk of causing burns and necrosis, and its refusal, by its hardness, to allow itself to be molded or shaped by manipulation beneath the skin.

Another most important point, not mentioned in this paper, has reference to the temperature of the paraffin at the time of the injection. This should be as low as is consistent with easy flow through the needle—for a melting point of 42 C., for instance, the working temperature should not exceed 45 to 46 C. (113 to 115 F.) One to one and a half cubic centimeters are recommended as the maximum dose for a single injection. The needle should be large, and the pressure upon the piston light. At the time of the injection it is advised that an aid make pressure, with the fingers, in such a manner as to prevent possible extension of the liquefied paraffin along a contiguous vein—that is, especially in the direction of the eye upon that side.

BLEPHAROSPASM TREATED BY DEEP INJECTION OF ALCOHOL AT THE POINT OF EMERGENCE OF THE FACIAL NERVE.

By Valude, *Annales d'Oculistique,* December, 1905.

Valude here reports the instant cure in two cases of *tic non douloureux* of the eyelids by the method of Schloesser. The patients were both women, aged, respectively, 46 and 60 years. In one the facial spasm had lasted three years, and in the other ten years. A single injection sufficed in each instance. It consisted of 1.5 c.c. of 80 per cent. alcohol to which was added 1 centigram of cocain for each centimeter of liquid. There was little pain, and in one case but little local reaction. Immediately, however, there was complete facial palsy and difficulty of speech. These effects soon disappeared—in a day or two. Up to the time of making the report there had been no return of the blepharospasm. The technic of Schloesser's procedure is given in detail.

BACTERIOLOGIC EXAMINATIONS OF THE BLOOD IN SYPHILITIC OPHTHALMIA.*

Dr. Zur Nedden.

[Reviewed by Robert L. Randolph, M.D.]

I need not more than refer to the investigations of Römer, Schirmer and others in connection with sympathetic ophthalmia, investigations which have appeared within the past few years and which have added much that is interesting in the way of experimental work, but which has failed to clear up the darkness which still envelops this affection.

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* Von Graefe's Arch. für Ophth., vol. lxii, No. 2.

Zur Nedden has just given us the results of some work performed under the direction of Sämisch, of Bonn. This observer holds the view that sympathetic ophthalmia is a metastasis and that the blood probably contains the organisms which produce the disease. It is unfortunate that these organisms can not be revealed by our present-day microscopes.

This is in accord with my experience in dealing with metastatic inflammations of the eye, which I have occasionally seen in meningitis, puerperal fever, typhoid fever and influenza. I have never succeeded in getting a growth of organisms from such eyes. I recall two cases, one where a woman had been ill with puerperal fever for some days and where metastasis occurred into the right eye and the tension and pain were so intense that the eye had to be opened. The other case was that of a child with typhoid fever, in which case the eye had to be opened for the same reason. In neither case did anything grow on the various media from inoculations made from the interior of the eye. Cover-slips, of course, showed nothing.

Zur Nedden reports three cases of sympathetic ophthalmia. In each of these cases a piece of the enucleated eye was introduced into the anterior chamber of a rabbit's eye and with practically no reaction. A small piece when placed in the ordinary culture media failed to show any growth. So much for this phase of the experiments. The blood examinations were particularly interesting, and Zur Nedden tells us that these examinations were made under the most careful aseptic precautions. The blood was extracted from the patient with an artificial leech, and as much as possible was injected into the vitreous of a rabbit, generally from 0.3 to 0.4 c.cm. For the first five days nothing unusual was noted, the redness from the operation having entirely disappeared. On the eighth day a clouding of the vitreous was observed, associated with slightly lowered tension, but with no external signs of inflammation. In a few days there was usually to be seen a yellowish exudate, which lay over the entire retina, which exudate, when examined for bacteria, gave negative results. This exudate, when introduced into a rabbit's eye, gave rise to the same sort of inflammation. It would seem from this that the blood of an individual suffering from sympathetic ophthalmia contains bacteria which are practically invisible, which can not be cultivated in the media which we generally use and which are capable of producing a plastic inflammation when injected into the eye of a rabbit.

Some of the blood obtained in the above manner was passed through a Berkefeld filter and some was exposed to a temperature of 60 C. for three-quarters of an hour. The filtered blood produced no reaction when injected into the eye of a rabbit, while the blood which was heated produced the characteristic inflammation with the yellowish exudate. In other words, the experiments up to this point suggest that the bacteria which were circulating in the blood were too large to pass through a Berkefeld filter and that they must possess considerable resistance, as they survived long exposure to such a high temperature.

One of his cases of sympathetic inflammation was treated in the following manner: Twenty-two cm. of serum which had been obtained from a patient who had gone blind from sympathetic ophthalmia was injected into a patient who had been suffering with sympathetic ophthalmia for eleven weeks. The result was certainly startling, for on the seond day after the injection the irritative symptoms began to subside, the exudate disappeared and the pupil, which had resisted atropin, dilated. In a few weeks the patient was discharged well and with a vision of 2/3. The case is clinically interesting as showing that serum taken from a patient who had sympathetic ophthalmia when injected into an individual suffering with this disease brought about rapid improvement, this improvement being so rapid as to suggest that the blood injected was practically an antitoxin.

A number of tests were made with the different media, but no growth was obtained till a medium was used composed of the serum of rabbit's blood and bouillon, and then an organism was obtained which closely resembled the pseudodiphtheria forms. With this organism he performed a great many experiments on the lower animals, making injections into various parts of the body, and in a certain number of cases (in rabbits) he obtained a very intense plastic iritis, which generally disappeared in three or four weeks.

It would certainly be far from safe to conclude from these interesting and suggestive experiments that the organism which Zur Nedden found was the specific bacterium of sympathetic ophthalmia, though this organism might be said to fulfill some of the conditions necessary for the specific organism to have, not the least of these conditions being the fact that this family of organisms is found with considerable frequency in the conjunctival sac, and from this point could readily find its way into the interior of the eye through a perforating wound. It would be safer, probably, for the present to assume that different organisms are concerned in the production of sympathetic ophthalmia and that the organisms should not possess the property of causing suppuration in the eye, but rather a plastic iritis. No doubt such organisms will be found to be very resistant and to grow preferably in the eye, producing no changes to speak of in remote parts of the body.

Zur Nedden's contribution is a valuable and stimulating one in that it opens up new roads along which the investigator can travel, although it can not be said to mark a distinct epoch or step forward in the history of sympathetic ophthalmia, and I am not disposed, as he seems to be, to attach much importance to the case of sympathetic ophthalmia which was apparently cured by using the serum of a person who had suffered with the same affection.

AFFECTIONS OF THE EYE IN RELATION TO THOSE OF THE NOSE AND ITS ACCESSORY SINUSES.

(1) The Ocular Symptoms of Affections of the Accessory Sinuses. W. C. Posey (*Jour. A. M. A.*, Sept. 9, 1905).

(2) The Treatment of the Paroxysmal Neuroses. W. N. Robertson (*Australasian Med. Gaz.*, Jan. 20, 1906).

[Reviewed by F. B. Eaton, M.D., San Francisco, Cal.]

For years the importance of considering the nose as a very frequent factor in producing ocular symptoms, both anatomic and functional, has been the subject of many medical articles. These, to a large extent, have been disregarded or treated with indifference, but, as evidence has accumulated and been presented by rhinologists and oculists, it has not become clear that in every case of eye affection a routine examination of the nose and its sinuses is an imperative duty, and that when least expected the relation may be vital. In the papers here reviewed the matter is considered from quite different points of view.

Posey's paper deals with the ocular symptoms resulting from sinus disease; Robertson's with nervous reflexes originating in the nasal fossæ, or with reflexes which, after the manner of an electric circuit, through the nerves of the nasal fossæ acting as a closed switch, bring about certain symptoms remote from the etiologic source.

The more important ocular symptoms described by Posey *seriatim* and clearly are: 1. The ophthalmoscopic appearances of the fundus in sphenoidal and ethmoidal sinusitis, and chiefly a characteristic unilateral neuritis. 2. An edema or puffiness of the lids, especially of the upper lid, on the nasal side, most marked in the morning, disappearing during the day. 3. Paretic conditions of the extraocular muscles. Posey is of the opinion that many cases attributed to rheumatism if analyzed would be found due to sinus disease. 4. Asthenopia, Posey finds not rarely due to sinus disease, with diminution of the range of accommodation. 5. Much is said of headache and neuralgia which sometimes present no features which differentiate them from those caused otherwise. But often they present characteristics very significant of sinus disease, though the patients generally first consult the oculist. Thus they may simulate migraine.

All who took part in the discussion of Posey's paper agreed with him as to the importance and frequency of the ocular conditions produced by sinus disease. It was pointed out by one speaker that pressure by the turbinates upon the septum gave rise to the same symptoms produced by sinusitis.

A very practical and important point was made by another speaker of wide experience, who stated that he had so frequently referred patients with eye troubles to expert rhinologists with expectation that sinus disease would be found, and had them come back with the report that nothing was the matter, that he now feels more confidence in a clinical association of symptoms taken in the ordinary rhinologic examination, and in some cases certainly the examination must go as far as the removal of considerable tissue and very careful examination before a negative reply can be accepted.

Robertson's views were given in an address as president of the Queensland Branch of the British Medical Association, and in regard to a new method of treating the paroxysmal neuroses according to the method of Dr. Alex. Francis, formerly of Brisbane, now of London, and also in regard to the theory of vasomotor mechanism of origin of these neuroses originated by Dr. Francis Hare, of Brisbane.

Francis' method of treatment, in his own words, is as follows: "After painting one side of the septum nasi with a solution of cocain and resorcin on a pledget of cottonwool attached to a probe, I draw a line with a galvano-cautery point from a spot opposite to the middle turbinate body, forward and slightly downward, for a distance of rather less than half an inch. In about a week I repeat the operation on the other side, and so on at weekly intervals, as occasion requires. . . . In some cases the effect can be produced by cauterizing the spongy swelling which is sometimes found on each side of the posterior extremity of the septum nasi."

The published results of this treatment by Francis and Robertson are decidedly startling as regards asthma. In 210 cases of asthma treated by Robertson, 157, or about 74 per cent., got complete relief; 35, or 16½ per cent., got considerable relief, while 18, or roughly 9 per cent., got very little or no relief. His report includes relief in several cases of angina pectoris and one cure. He finds the treatment of migraine and migrainous headaches by this method most effectual, and in cases where the correction of eyestrain had failed. He believes that "pressure of the middle turbinate on the posterior-superior part of the septum, however, is the great cause of migrainous attacks." Also, that "intranasal treatment very seldom fails to abolish periodic headaches of the migrainous or so-called bilious type."

The reviewer is constrained to commend this statement to those who are disposed to attribute, with Gould, of Philadelphia, such migrainous paroxysms to eyestrain wholly or principally.

Robertson remarks that evidently the nose is not primarily the factor in the production of the paroxysmal neuroses. It seems to him that "the nose is like the electric switch which closes the circuit to the sympathetic vasomotor nervous mechanism, and, according to the hereditary or other tendency of the patient, so does the explosion take place." He states: "I have no doubt whatever that cauterization of the septal mucosa after the method of Francis acts exactly in a similar way to a dose of nitrate of amyl or nitroglycerin, except that its effects are more lasting."

Robertson states that, of course, he does not bring this treatment forward as a panacea for all ills of this nature, but that he feels very strongly that "the experience I have had with it warrants me in urging every one who has the opportunity to try it."

The reviewer would add that the rival claims of Philadelphia and Brisbane as to the relative efficiency of eye refraction and nasal treatment of migraine, and perhaps epilepsy, must be settled, as Robertson suggests, by extensive trial. The possibility of suggestion, as conveyed by the personality and positive assertions of the physician, he also considers should be regarded as a possible factor of cure or relief.

UNILATERAL MYDRIASIS AS AN EARLY SYMPTOM OF PULMONARY TUBERCULOSIS.*

By Dr. H. Bichelonne, of the French Army.

[Reviewed by C. H. Beard, M.D.]

This writer prefaces the report of a case by the remark that, although the existence of anisocoria in pulmonary tuberculosis, and particularly that of monolateral mydriasis in the early stages of tuberculosis, has been mentioned for several years, it does not seem yet to have acquired the right to be cited in the symptomatology of this affection. The difficulty often encountered in tracing the manifestation from its incipiency renders precious all the signs capable of revealing it; hence his object in reporting the case in point. It is that of a soldier, 20 years of age, admitted to the hospital because of dilatation of the pupil of the right eye. At first the vision of the eye was blurred, but after a few days it returned to normal, but the dilatation persisted. The direct and consensual pupil reactions were normal. As there was no supplementary dilatation under cocain, the conclusion was that the mydriasis was spasmodic, i. e., caused by excitation of the sympathetic—not paralytic. There was moderate astigmatism in both eyes—myopic in the right, mixed in the left. In all other respects both eyes were normal. The same as to nose and accessory cavities. Personal and family history were negative. Reflexes—Absence of plantar. Slight diminution of corneal, pharyngeal, testicular and abdominal. Marked testicular analgesia. Examination of chest revealed induration at the apex of right lung. Eserin produced scarcely any contraction of the pupil. The author thinks physiologic anisocoria may be excluded. The absence of any concomitant muscular anomalies of the eye, either internal or external, he believes to exclude hysteria. A number of observers are quoted in support. He believes that the mydriasis, in his case, was due to irritation of the great sympathetic by the tubercular process in the apex of the right lung, or in the contiguous or neighboring glands. While admitting that there is nothing new in the observation that under the influence of a unilateral lesion there is often a modification of the function of the cilio-spinal center of that side—in this case a spastic contraction of the radiating fibers of the iris—he thinks, perhaps, the notion has not acquired the importance which it deserves. Many interesting references are given bearing upon the subject—illustrating phases of altered function in the sympathetic—down to impairment of said function, when there occurs myosis and narrowing of the palpebral opening of the corresponding side. Bichelonne inclines to the belief that unilateral mydriasis is an important symptom in tubercular localization, to be sought ere there are any other definite manifestations of the disease. As Rampoldi stated, however, as early as 1885, it *must* be *sought,* since it is not apt to be complained of by the patient. After having eliminated the commoner causes of inequality of the pupils, one is constrained to think of beginning tuberculosis, glandular or pulmonary, on the side of the mydriasis.

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* Annales d'Oculistique, October, 1905.

Reports of Societies.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of March 13, 1906.

DR. GEORGE F. FISKE, President.

PECULIAR EXPERIENCE WITH DIONIN.

Dr. Suker reported the following case: As the result of the explosion of a percussion cap, a young man, aged 21, developed a seroplastic iridocyclitis. In order to get as much dilatation as possible, dionin in powder form was used. Contrary to expectation, an excessive myosis developed. The pupillary opening was scarcely visible, and even under use of atropin it was several hours before a pinhole dilatation could be secured. Two days later, after all irritation had subsided, an iridectomy was performed, and it was found that, even in this short time, attachment of the posterior surface of the iris to the anterior capsule of the lens had taken place. No similar case is reported in the literature. The question arises whether the myosis was the result of an idiosyncrasy on the part of the patient or due to impurities in the preparation of the drug from morphin. To determine this, the same powder was used on another patient who had iridocyclitis without producing any unusual effect.

Discussion.—Dr. Faith had seen this case with Dr. Suker and also another case of mild uveitis, no iritis, in which the dionin caused a marked myosis; the patient was under atropin and the pupils widely dilated. The physician who had the case under his care tried it again, with the same result.

In reply to Dr. Pusey's question, Dr. Suker stated that the tension was not altered either before or after the use of the dionin.

Dr. Dodd had seen slight myosis in several cases following the use of dionin.

Dr. Loring stated that he had inadvertently put one drop of 5 per cent. solution of dionin in each eye of a 12-year-old boy whose pupils were fully dilated from several days' use of atropin. Fifteen minutes later the pupils were contracted to about 3 mm. and so remained for about an hour, when they began to dilate slowly; in half an hour more they had attained their normal size. (The boy had a marked central choroiditis and nystagmus with a high refractive error.) He used the same solution in two or three other cases with the usual result. The vision was not altered sufficiently to produce a chemosis.

Dr. Colburn cited two cases now under observation. In the one he used dionin with the usual result, but in the other no chemosis followed. Thinking that he might have been careless in instilling the drops, he repeated the procedure, but still no effect was observed. In both cases, however, he noticed that in from twenty minutes to half an hour after the use of the dionin the pupils were contracted. No atropin was used in either of the cases.

In closing, Dr. Suker stated his preference for dionin in powder form and cautioned against impurities which the drug may contain.

LOCAL DEPLETION IN THE TREATMENT OF THE TRACHOMATOUS CONJUNCTIVA.

Dr. Nils Remmen believes that the roller forceps and strong astringents only irritate a part which should be left alone. One should evacuate the follicle and deplete the tissue with the least possible increase of blood supply to the conjunctiva. With this in view he uses the sharpened edge of a toothpick to scrape open and evacuate the follicle and exsanguinate the diseased area, and then applies bichlorid of mercury, 1-5000, to the exposed surface. Prompt cure has followed in a number of cases which resisted the more violent form of treatment.

Discussion.—Dr. Fiske stated that he has not used silver or copper in the treatment of trachoma for fifteen years. Instead of the toothpick, he uses a cataract knife to scarify. His results have been much better than with the use of the bluestone.

Dr. H. B. Young said that he did not think that strong astringents could be discarded entirely; in fact, he thought that sometimes they are not used in sufficient strength.

DIABETIC RETINITIS.

Dr. W. E. Gamble exhibited and reported the following case: F. P., aged 35, R. and L. V. 3/200; examination of the fundus revealed white, highly refractile, widely scattered punctate areas of degeneration, with a few almost imperceptible hemorrhages throughout the posterior segment of the retina of each eye; the retina between the affected areas was perfectly clear. No history or evidence of syphilis could be found. The urinalysis showed 3,750 c.c. to have been passed in 24 hours, sp. gr. 1.031, and 1.67 per cent. of sugar; no albumin or casts were found; subsequent urinalyses showed 2 and 3 per cent. of sugar, respectively. Despite the increase in the amount of the sugar, the vision had improved to 12/200 after six weeks of observation; the areas in the retina have improved somewhat.

The case falls into Class 1 of Hirschberg's classification, namely, central punctate diabetic retinitis, rather than into Class 2, in which only hemorrhages are present. Other things being equal, the prognosis should be more grave in the hemorrhagic type than in the form without hemorrhages. The areas of degeneration in the author's case differ in no way from those found in albuminuric retinitis outside the macula.

The prognostic significance of retinitis in diabetes has recently been discussed by Nettleship. He bases his conclusions on 48 cases. The patients ranged from 41 to 79 years; 38 were known to have died, 9 in the first year, 11 in the second, 18 between 3 and 8 years after the discovery of the retinitis; 10 were known to have been living 2 years after such discovery, 6 at periods of from 6 to 10 years after. The prognosis as to duration of life, therefore, differs widely from that of albuminuric retinitis, since two-thirds of the patients were living two years after the retinal lesion was observed.

Discussion.—Dr. Dodd referred to three cases of diabetic retinitis in his own experience, one of which returned after four years, with improved general health and vision, although the spots in the retina were still present.

Dr. Suker asked whether the vascular tension had been taken. Diabetes is a toxemia, and all toxemias increase the blood pressure, either locally or generally. Prior to the specific lesions appearing in the retina there is always to be seen a retinal haze, the result of the increased peripheral tension; the higher the blood pressure the more apt are hemorrhages to occur, and *vice versa*. The acme of the fundus findings is in consonance with the tension. If the tension is low the condition is apt to be of the inflammatory type; if the tension is high, hemorrhages will in all likelihood take place. He has examined a few of these cases with Dr. Elliott, and in a number of instances has been able to state the condition of the patient from a study of the fundus alone. In all these cases either sugar or albumin was subsequently found. He considers the question of the vascular tension a most important one in the prognosis of the case, and urges that it be determined in every instance.

Dr. E. V. L. Brown referred to a case which is an exception to these rules laid down by Dr. Suker. The case is one of bilateral detachment of the retina in a nephritic with thrombosis of the choroidial vessels. The blood pressure is 210, and yet there are but three hemorrhages in the two fundi.

Dr. Wilder also cited a case of retinitis in chronic nephritis with arteriosclerosis in which there are but two or three hemorrhages, although the blood pressure is 240. There is in this case a marked papillitis, such as that often seen in brain tumor and gumma; the patient is totally blind except for the central vision which often persists to the end.

Dr. Suker said that active congestion is more apt to be found with high tension and passive congestion with low tension; hemorrhages may occur in either condition, but they are more likely to occur with high tension. The high tension in arteriosclerosis necessarily leads to nephritis. If there is a cardiac lesion, a valvular lesion associated with the high tension compensation will minimize the congestion.

Dr. Gamble stated that the blood pressure was not taken in his case; the arteries were not hard nor did they indicate a high vascular tension, and the absence of haziness between the spots in the retina would speak against it.

HYALIN DEGENERATION OF CONJUNCTIVA.

Dr. Wilder presented a patient, a man, aged 50, who has had sore eyes for six years or more. The trouble began in the right eye with a growth at the inner canthus. Two years ago a similar growth appeared in the left eye, and now it has formed the condition of symblepharon. The growth has almost covered the cornea of the right eye so that vision is very much reduced.

The growth looks like an epithelioma, and palpation would tend to confirm this impression. A microscopic section was made of a small portion of the tumor. There is beneath the conjunctival layer of the epithelium a proliferation of the lymph vessels, and in the connective tissue reticulum there are seen lymph vessels the walls of which are thickened and have undergone hyalin degeneration. In all probability the case is one of hyalin degeneration of the conjunctiva, a condition which frequently follows trachoma.

He has seen two other cases of hyalin degeneration coming on after trachoma. Both patients were Jews from eastern Europe. The treatment is operative. It will be necessary to excise the mass and do a plastic operation on the lid.

Discussion.—Dr. Dodd stated that he had a case which seemed to be very similar to that of Dr. Wilder's. The entire cornea was covered with the growth. The conjunctiva was very much thickened on all sides both in the upper and lower cul-de-sac. The eyeball was fixed. He removed the growth as carefully as possible and made a large skin graft so as to form a new cul-de-sac both above and below. Finally he was forced to operate again at the inner canthus. What was left of the conjunctiva began to proliferate and gave much trouble. The cornea became opaque and it is now thickened and steamy and the patient complains continually of the irritation. The eyeball has retained good movement, however.

Dr. E. V. L. Brown exhibited cases of *Keratitis profunda* and *Iritis gonorrhœica.* E. V. L. Brown, *Secretary.*

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of Feb. 17, 1906.

Dr. Melville Black, Denver, presiding.

HEMORRHAGE IN THE VITREOUS. NYSTAGMUS.

Dr. E. R. Neeper, Colorado Springs, presented a metal worker, aged 32, with the history of scarlet fever in 1887, followed by weak back and inability to retain urine over night for 7 or 8 years thereafter. In 1898 his face was burned by powder, which the sclera evidences by a dark-brown patch 3 mm. in diameter about midway between the cornea and the caruncle. Following this accident a shadow had been present before the right eye, although the vision was otherwise satisfactory.

During the evening of Jan. 10, 1906, there was acute distress in the lumbar region and right groin. On January 11 R. V. was very much reduced, and on the following day it was still worse. An ophthalmoscopic examination on that day showed only a reddish reflex. The pupils reacted poorly to accommodation, but normally to light. R. V. = light perception; L. V. = 20/20 +, which remained unchanged. The urine showed nothing abnormal except hyperacidity. Sodium salicylate and alkalithia were given.

January 21 R. V. = 20/120, January 25 R. V. = 20/80, February 3 R. V. = 20/60, and the patient spoke of a tremulous fluttering or oscillating sensation, and such movement was discernible. The vitreous was well streaked with remnants of hemorrhage. A large snowbank patch could be seen anteriorly on the nasal side of the fundus, apparently directly beneath the scleral powder stain. The above described shadow was present, but was much more noticeable. February 12 R. V. = 20/30 after effort. February 16 R. V. = 20/40. Nystagmic movements were reduced.

Discussion.—Oscillation was thought to be due to parts of the retina being clear, hemorrhage obscuring the rest.

RETINITIS ALBUMINURICA.

Dr. Strickler presented the case of G. N. B., aged 45, who gave a history of dimness of vision of the left eye beginning in October last. Shortly following this he had nervous prostration with increased dimness of vision. He had occasional pain behind the left eye and also below it. About the latter part of October he had an attack which was diagnosed ptomain poisoning, during which he lost 45 pounds in weight in about ten days. Dr. Strickler first saw him Feb. 10, 1906, when his vision was: R. E., 28/50 partly; L. E., 28/200. The fundus showed retinitis with numerous small hemorrhages. Examination of the urine showed traces of albumin, hyalin and granular casts. Blood pressure, 185 mm.; erythrocytes, 7,510,000; pulse, 120. The case was presented for the discussion of the possible bearing of the large number of erythrocytes on the prognosis.

Discussion.—Dr. Black said he should disbelieve the blood count, but stated that he considered the prognosis bad as to sight or life. In the latter statement Drs. Jackson, Stevens and others concurred and pronounced the case one of albuminuric retinitis.

MONOCULAR PIGMENTED RETINA.

Dr. Melville Black presented the case of a woman, aged 27, with pigmented retina following the course of the vessels in the periphery of the fundus of her left eye only, with accompanying atrophy of the retina and nerve and diminutive sized vessels. The visual field was contracted concentrically to a very marked degree. L. V. = fingers at six feet. R. V. = 20/30, with normal ophthalmoscopic appearances and normal field. Dr. H. Gifford, of Omaha, had seen this case nine years before. At that time she had 20/100 vision in the left eye, with no retinal pigmentation. She did have postneuritic atrophy, vessels very small, whitish degeneration of the central retinal region with fine glittering stripes on the surface, with contracted field, in the left eye.

Discussion.—It was generally believed that the pigmentation was due to a deposit of coloring matter left in the wake of retinitis, not that it was a true retinitis pigmentosa.

COPPER IN THE VITREOUS.

Dr. Black presented the case of Mr. J. A. K. This man was brought before the society several times during the winter of 1904-5, when it was possible to see a minute particle of copper suspended in the vitreous, with vision = 20/30. He had been injured in September, 1904, by the explosion of a box of dynamite caps, by which the left eye was destroyed, rendering enucleation necessary at the time. The right eye then presented externally a normal appearance, except for a minute marginal corneal wound. There was a small hole in the corresponding margin of the iris, slight opacity of the margin of the lens, vitreous cloudy below, a spot of hemorrhage to the nasal margin of the disk, and the glittering particle of copper suspended in clear vitreous somewhat anterior and to the nasal side of the vitreous center. Dr. Black last saw him ten months ago, when the particle of metal was plainly visible. When presented on Feb. 17, 1906, the metal had disappeared, having probably settled down behind the ciliary body. The vitreous was clear, and vision was 20/20. He was having no discomfort whatever with this eye.

Discussion.—Dr. E. T. Boyd, of Leadville, again reported his case of copper in the vitreous, in which the vision was still good.

EPIBULBAR SARCOMA—SCLERAL INCISION.

Dr. Jackson showed a patient from whom an epibulbar sarcoma had recently been removed under anesthesia from cocain crystals. He was a boy, aged 14, in whom the growth had developed within the last six months. It lay 2 mm. to the nasal side of the cornea, was 7 mm. long, parallel to the corneal border, 3.5 mm. wide, and protruded 2 mm. It was dark bluish brown, almost black, and appeared to move freely over the sclera. On attempting excision the growth was found adherent to the sclera. The knife was, therefore, turned fairly into the scleral tissue, removing the greater part of its thickness. After the operation there remained an opening, 3 by 4 mm., which appeared to go almost entirely through the sclera. But there was no hemorrhage from the choroid or ciliary body, and the tension of the eyeball was not materially reduced. At the end of sixteen days this space had filled with a large mass of granulation tissue.

Discussion.—Dr. Neeper had seen this case Nov. 6, 1905, when the growth had been noticed only two weeks. It was one of a dark amber color, and movable in the conjunctiva then. Five days later no change was observed.

MAGNET EXTRACTION.

Dr. Jackson showed a man, aged 23, in whom a scale of steel had entered the eye, making a radiating irregular wound from the center of the cornea downward. It divided the iris from the pupillary margin to the ciliary body and had passed through the lens, which was already so hazy as to cut off any view of the fundus, two and one-half hours after the accident. Under local anesthesia produced by crystals of cocain, the wound of entrance was enlarged by an incision, 6 mm. long, in the lower corneal margin. Through this the lens nucleus was extracted and the piece of steel removed at the first attempt with a large hand magnet. At the end of ten days, however, the tension was still reduced and light perception had diminished.

Discussion.—Dr. Strader reported a case of removal of steel through an opening below the internal rectus by use of a magnet. In thirty days V. = 20/30 partly, when the patient had returned to work. In three days a general uveitis, with exudate, had developed. Iron filings were found in the conjunctival sac. V. = hand movements. Under large doses of sodium salicylate the vision had again returned to 20/30.

CORNEAL ULCER.

Dr. W. C. Bane presented a case of ulcer of the cornea, almost healed. J. W. L., aged 44 years, had got some lime dust and cinder in the left eye two weeks previous. One week later he came for treatment. The eye had been very painful for two days and nights. The pain radiated throughout the side of the head. Vision: R. E., 6/9 +; L. E., 6/60. Left eyeball was congested and tender. Circumcorneal injection was marked. A penetrating ulcer, 2½ mm. in diameter, was located in lower inner quadrant of the cornea. The epithelial layer from the ulcer to the lower margin of the cornea was rough and partially undermined by exudate. Treatment: Atropin in 1 per cent. solution. A strong solution—almost pure—of alphozone was applied direct to the ulcer after the instillation of 1 per cent. solution of cocain. Immediately the patient complained of a burning pain in the eye. The eye was at once flushed with water and trikresolized vaselin (1/1000) applied to the eye. Calomel, salines and quinin were administered. On the third day of treatment alphozone was again applied to the ulcer, although the germs had apparently been destroyed by the first application. Some pain was caused by the second application of alphozone, also. On the fourth day sodium salicylate (true) in 15-grain doses every four hours was ordered. The pain in and about the eye had not been controlled until the system was under the effect of the salicylate. Atropin was instilled daily. After the fifth day of treatment the circumcorneal injection had begun to fade. The ulcer was almost healed when the case was presented on the eighth day of treatment. Vision was raised to 6/9.

Discussion.—Dr. Strader had used a saturated solution of alphozone on the arm, covering with a dressing. It caused a deep burn, a red scar showing three months later.

Dr. Neeper stated that he had used alphozone, 1:1000, in purulent conjunctivitis and dacryocystitis with good results, and Dr. Coover had used it in strength of 1:2000 in purulent dacryocystitis, and the pure powder in purulent otitis media, effectively.

UVEITIS.

A case of uveitis with loss of vision, exhibited before the society in October, 1905, by Dr. D. H. Coover, was again presented at this meeting. Under subconjunctival saline injections, light perception had returned all over the field, and he was able to count fingers in the temporal portion. Dr. Coover reported the tension as minus in the mornings and plus in the afternoons.

Dr. F. A. Davis, of Denver, read a paper on "Recent Discoveries in Perimetry," which will be printed in full in THE OPHTHALMIC RECORD.

Dr. G. F. Libby reported a case of binocular membranous conjunctivitis in a man, aged 40, who had never had any trouble with his eyes previous to this acute attack. There was also uveitis, the vision being reduced to fingers only. The eyes had become inflamed only four days previous to his presenting himself for treatment, when an intense general conjunctivitis existed, all of the conjunctiva, except a circle 3 mm. in diameter encircling each cornea, being covered with a tenacious grayish membrane of diphtheritic appearance. The lids were swollen greatly, being tense, smooth and red, but the corneas were clear, although they became rough and hazy later. There was abundant purulent discharge. Twice cultures were made of the membrane, and the discharge was examined microscopically by Dr. W. C. Mitchell, who found the xerosis bacillus in great abundance, but no bacillus of diphtheria, and also found streptococcus and staphylococcus.

The treatment consisted of lead and laudanum wash on the lids, 10 per cent. argyrol and ½ per cent. atropin t. i. d., cleansing the eyes with boric-acid solution every half-hour, calomel internally. In nine days the membrane had disappeared and the discharge had ceased, and in three days more the R. V. = 4/15, L. V. = 4/4 partly, the conjunctivitis and keratitis were nearly well and the right vitreous somewhat hazy, when the patient left town.

Dr. Libby also reported a case of edema of both conjunctivæ in a man of 21, dependent upon cardiac disease and low blood pressure. For three days the eyes and lids had been swollen and red, when an intense edema appeared. R. V. = 4/5, L. V. = 4/4 partly, media and fundus normal, each eye.

Physical examination by Dr. E. C. Hill showed that the heart extended one inch to the right of the sternum and the apex two inches to the left of its usual position. This dilatation had resulted from overindulgence in athletics while at college, his only complaint being shortness of breath. The blood pressure was 89, pulse 110, urine scanty (about 18 oz. in 24 hours), with excess of indican and urea. No sugar or albumin. Appropriate heart tonics, evacuants and regulated diet caused a complete disappearance of the ocular symptoms, reduction of much of the dilatation, relief from dyspnea on exertion, raised blood pressure, a pulse of 94 and greatly improved urine at the end of a week. Six weeks later the patient reported himself from Mexico as a busy and well man.

GEORGE F. LIBBY, *Secretary*.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, March 8, 1906.

PRIESTLY SMITH, F.R.C.S., President, in the Chair.

Messrs. J. Herbert Parsons and George Coats read a paper on a case of orbital encephalocele, associated with microphthalmia. Mr. Parsons had shown the child to the society when 13 weeks old. There were then large cyst-like masses in the right orbit pushing the globe over to the outer side. The right eye was evidently microphthalmic and showed ophthalmoscopically a coloboma of the nerve entrance and also of the macula. Various diagnoses were made as to the orbital condition. As the tumor was increasing in size, it was operated on, but the child died a few days later. The mass in the orbit consisted of brain tissue which pressed upon and caused deformity of the globe. It was connected with a large mass of brain substance within the skull which lay beneath the frontal lobe. The intracranial mass had displaced the latter upward and the temporal lobe backward, but had no connection whatever with either. It was, therefore, believed to be either a teratological inclusion or a piece of brain substance snared off in early fetal life, possibly from the region of the caudate nucleus, and growing independently.

The eye showed three deformities, each of which was rare: (1) An ectasia on the nasal side of the papilla, which still had a lining of stretched choroid and normal retina. (2) A coloboma of the nerve entrance which was peculiar in being on the temporal side of the nerve and in being entirely within the area of the porus opticus. (3) A macular coloboma which consisted chiefly in a partial defect and depigmentation of the pigment epithelium, both the choroid and retina being almost intact. The relation between the encephalocele and the abnormalities of the globe was discussed.

Mr. Priestly Smith described a scotometer for the diagnosis of glaucoma and for other purposes. It was intended to facilitate the examination of the central parts of the field of vision, especially in cases of suspected glaucoma. It consisted essentially of a disk of millboard covered with black cloth and figured on the back with the degrees of the circle. The test object was a small cutting of gray wool which was laid upon the cloth at any desired distance from the center. In the case of suspected glaucoma it should be placed at 25 degrees from the center, as shown by a faint mark on the cloth, and the disk should then be slowly rotated. Should it nowhere disappear or grow dim, in all probability glaucoma does not exist, for, as Bjerrum had shown the defects in the glaucoma field was almost always radical or sector-like, and with a delicate test could be traced inward. If a defect were found, its extent should be noted on the graduated circle so that it could be used for future comparison. Other circles could be explored if necessary. The authorized maker of the instrument is Mr. Bailey, of Bennett's Hill, Birmingham.

Mr. C. Worth read a paper on hereditary influence in myopia. Though often regarded as a simple error of refraction, grave complications may arise which altogether overshadow the original condition. Myopia is frequently inherited. In a series of 687 cases examined by the author, 33 were malignant and 654 were uncomplicated. Of the latter 56 per cent. gave a family history of myopia, while in the former only 24.25 per cent. was evidence of heredity found. In one family whose pedigree was shown, nearly all the males were myopic and none of the females; but the myopia was transmitted through the female line. The amount in all cases examined was about the same, viz., 10 to 12 D. with some astigmatism. The fundi showed crescents, but grave complications were wanting. Curiously enough in this family all the healthy eyes were blue and all the myopic ones were brown. Night blindness was only admitted in one family.

The statistics of the 687 cases were as follows: Of 313 with no family history of myopia, 163 were males and 150 females. Of 374 with a family history of myopia, 228 were males and 146 females. This showed that the usual preponderance of myopia in men was increased in those in which myopia was hereditary.

Of the 374 cases in which a family history of myopia was obtained, in 159 the parents were myopic, but the myopia was present in uncle, aunt or grandparent. The fault was on the mother's side in 104 cases, on the father's side in 33 cases, and on both sides in 22 cases.

C. DEVEREUX MARSHALL, F.R.C.S.

Notes and News.

Dr. Samuel D. Risley, chairman of the section on specialties, Medical Society of the State of Pennsylvania, has issued the following announcement to members of the society: The Medical Society of the State of Pennsylvania meets at Bedford Springs September 11 to 13. The section on specialties will have three sessions, at one of which it hopes to present a series of papers devoted to the subject of Ocular Infections from local and general sources. (1) Local Infections, to include those coming from the conjunctival and lachrimal passages. (2) Endogenous Infections, including auto-intoxications. (3) Operative, Postoperative and Traumatic Infections, including those arising from instillations, droppers and instruments. A second session will be devoted to affections of the nasal passages and the accessory sinuses. It is especially desired that observations will be brought forward pointing to the anatomical, clinical and pathologic relationship to the diseases of the eye and ear, of the diseases and deformities in the anterior portion of the skull. The third session, and any time not consumed by the symposia in either of the other sessions, will be devoted to papers on topics of general interest. Members of the society wishing to present papers before the section at either of these sessions will please apprise the chairman or secretary at the earliest possible date of their intention to do so, giving the title of their paper. In order to appear upon the program, both the title and an abstract of the paper must be in the hands of the committee before July 21.

The following program has been arranged by Ohio Eye, Ear, Nose and Throat practitioners for the Canton meeting, to be held at the same time as that of the State Medical Association, May 9 and 10: 1. "My Experience in the Treatment of Duct Troubles," Walter H. Snyder, Toledo; discussion opened by J. E. Brown. 2. "Visual Results After Cataract Extraction," D. W. Greene, Dayton. 3. "The Anterior Capsule in Operation for the Extraction of Cataract," C. C. Clarke, Columbus. 4. "Some of the Minor Details Frequently Neglected in Cataract Extraction," R. D. Gibson, Youngstown; discussed by Mark D. Stevenson. 5. "Hemorrhagic Neuroretinitis with Purpuric Appearances," W. K. Rogers, Columbus. 6. "Hemorrhage into the Vitreous, with Report of a Case," B. L. Millikin, Cleveland; discussed by C. F. Clarke. 7. "Report of Two Cases of

Radical Operation for Maxillary Sinusitis with Ethmoiditis, One Recovery, One Death," L. R. Culbertson, Zanesville; discussed by C. R. Holmes. 8. "The After-Treatment of Operation Upon the Mastoid," A. Timberman, Columbus; discussed by J. N. Lenker. 9. "The Bronchoscope and Esophagoscope as Valuable Aids to the Laryngologist and Surgeon," S. H. Large, Cleveland; discussed by E. L. Mather. 10. "Report of a Case of Unusual Development of Mucus Polypi of the Frontal and Ethmoidal Sinuses," A. H. Marvin, Cleveland; discussed by J. N. Lenker. 11. "The Artificial Drumhead," E. L. Mather, Akron; discussed by Charles F. Lukens. 12. "Inflammation of the Eye Due to Infection from Hay Fever Conveyed by Tobacco Smoke, with the Report of a Case," J. W. Wright, Columbus. 13. "The General Practitioner and the Ophthalmologist," Oscar Tydings, Piqua; discussed by D. W. Greene. 14. "Glaucoma, the Necessity of Being Recognized Early," C. S. Means, Columbus; discussed by J. W. Wright. 15. "The Use of the X-Ray and Electro-Magnet in Removing Foreign Bodies from the Eye," A. R. Baker, Cleveland; discussed by George S. Iddings. 16. "Foreign Bodies in the Anterior Segment of the Eye and Their Removal," W. E. Bruner, Cleveland. 17. "Siderosis of the Lens," O. B. Monosmith, Lorain; discussed by W. E. Bruner. 18. "A Study of 1,500 Retinoscopic Tests Under a Cycloplegic, with Special Reference to the Axes of Astigmatism and Accompanying Symptoms," W. McL. Ayres, Cincinnati; discussed by Mark D. Stevenson. 19. "The Present Overshadowing Problem in Ophthalmology—the Muscle Question," F. K. Smith, Warren. 20. "Ocular Gymnastics," William B. Van Note, Lima. 21. "Muscular Asthenopia and Treatment by Ocular Gymnastics," Harry B. Harris, Dayton; discussed by C. F. Clarke. 22. "An Advancement Suture," J. E. Cogan, Cleveland; discussed by A. R. Baker. 23. "Traumatic Enophthalmus, with Report of a Case," Charles F. Lukens, Toledo; discussed by S. C. Ayres. 24. "Eye, Ear, Nose and Throat Examinations in the Public Schools," C. L. Minor, Springfield; discussed by H. Snyder. 25. "Herpes Zoster Ophthalmicus," G. A. Sulzer, Portsmouth; discussed by H. G. Sherman. 26. "A Case of Acromegaly, with Interesting Eye Symptoms," E. H. Porter, Tiffin; discussed by Francis Alter. 27. "The Eye and Disease of the Central Nervous System," T. K. Moore, Akron; discussed by Edward Lauder. 28. "The Need of State Organization of Eye, Ear, Nose and Throat Practicians," Mark D. Stevenson, Akron; discussed by J. E. Brown.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

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Original Articles.

A CASE OF FOREIGN BODY IN THE ORBIT.

CHARLES H. BAKER, M.D., M.PH.
BAY CITY, MICH.

(Illustrated.)

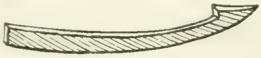
The following case is remarkable chiefly on account of the size and length of time a large piece of steel remained in the orbit and cranial cavity unsuspected and without unusual irritation.

The patient was injured by the explosion of a Winchester rifle, in which he was firing too great a charge of nitropowder. The left eye was cut by some of the fragments of the breech and perforated through the cornea, lens and into the vitreous. As I did not see him until four weeks after the injury, I am unable to give an accurate description of the condition at that time, having only the patient's description to rely on. He was treated by cold applications principally and without any marked pain at any time; the eye healed over, leaving a partially atrophied, blind stump.

When he presented himself at my office the eyeball was atrophic, the cornea shrunken to two-thirds its original diameter, there was marked tenderness in the ciliary region and the sound eye showed dangerous symptoms of impending sympathetic ophthalmia.

Accordingly enucleation was advised, to which he readily consented, and the operation commenced without delay. When the scissors were introduced for the purpose of dividing the optic nerve the blades met on some metallic substance, which the probe showed to be of considerable size and immovable. Attempts to remove it with dressing forceps and heavy artery clamps proved unavailing, and finally a pair of gasfitters' pliers was drafted into service. With these a good hold could be had and a pull sufficient to have served for the extraction of a well-rooted molar tooth brought away the piece. It was found to be a piece of steel, part of the extractor spring, one and a quarter inches long, slightly curved toward one end, which was sharp and was provided with a barb which resembled that of a fish-hook.

The steel, which was square in cross section, about one-eighth inch on a side, had traversed the eyeball point first and penetrated the roof of the orbit far enough for the barb to engage in the edge of the opening, thus preventing its extraction until the force used was unsufficient to break away the edge. There was none of the steel within the eye, so it had evidently passed entirely through at the time of the injury. The healing was uneventful, being normal in duration and having only a slight increase in the amount of discharge.



On further questioning I learned that the spring was one the man had fitted himself to replace the one furnished with the gun, which had been broken, and that, at the time of the accident, he had looked for and found all the fragments of the gun except the part within the head, and he supposed it had been blown too far away to be found. Thus he had for four weeks been the unconscious host of an unwelcome visitor, whose presence might have been suspected at the time of the accident, but could hardly have been demonstrated without unwarrantable probing, and the way it was fixed in the orbital roof would have given no information with the use of the giant magnet, while the accident happened previous to the discovery of the *x*-ray.

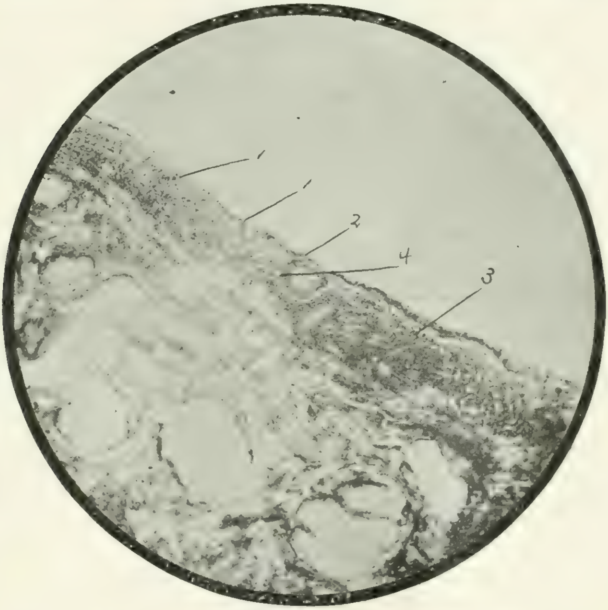
MORAX-AXENFELD CONJUNCTIVITIS

FRED T. TOOKE, B.A., M.D.
Clinical Assistant in Ophthalmology, Royal Victoria Hospital, Montreal.
MONTREAL.

(Illustrated.)

One of the chief difficulties which I have experienced has been the selection of a suitable heading for this paper. The terms already employed for the disorder are many and varied. The French school following Morax still retains the term "conjunctivite subaigue." Axenfeld, with other German writers, has employed the term "blepharo-conjunctivitis," defining somewhat more in detail the parts affected. The English school of ophthalmology still designates the disease "angular conjunctivitis," the term being warranted, they claim, by special features represented on the lid margins and on the conjunctiva in the neighborhood of the canthi. It is, however, more rational to adopt the name of the microörganism producing the condition, now that one has been found, and allow it to act as sponsor for the disease under consideration.

Morax, working at the Pasteur Institute, discovered a microorganism which he was able to associate with definite clinical conditions of the conjunctiva and lid margin. The results of his discoveries appeared in his thesis in 1897. Axenfeld, working independently along identical lines, made known similar discoveries at the Heidelberg Congress of Ophthalmology in the same year. The subsequent indorsement of the results of these two men's work by recognized authorities in other countries proves that the disease in question has a very wide geographical distribution.



SECTION OF LID NEAR CILIARY MARGIN.

1. Epithelial saccules.
2. Epithelial saccule proceeding to cyst formation containing goblet cell.
3. Infiltration of leucocytes in adenoid layer.

ETIOLOGY AND SYMPTOMATOLOGY.

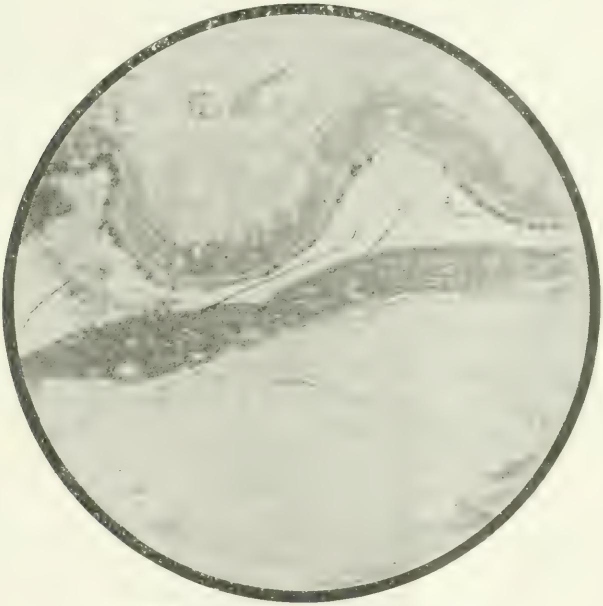
The symptoms complained of, briefly, are those of a burning sensation in the eyes, generally worse in the morning. Patients state quite frequently that there is a feeling of fine granules of sand rubbing against the eye. Numbers state that there is a discharge from the eyes and that the lids are found tightly gummed together on waking. Others affirm that there is a very marked tendency to rub the eyes.

Clinically the disease may be said to assume the following picture: As a rule we see both eyes affected, although the onset is not necessarily synchronous. Again, the eye last affected may frequently assume a milder type of inflammation than its fellow where the infection originated. The conjunctiva is slightly hyperæmic and somewhat thickened near the ciliary margin, assuming that velvety appearance so frequently met with in chronic catarrh. It is moderately dry, but flakes of a moist, mucoid secretion, yellowish gray in color, frequently thick and tenacious, are found in the lower cul-de-sac or often about the inner canthus. This secretion may be expelled by the forced contraction of the lids, produced by the irritation which the disease causes. When expelled, the discharge gathers upon the lid margin and hardening, is seen as brownish yellow crusts. The skin at the palpebral margin shows an erythematous, excoriated surface at both angles, but more noticeably at the inner. This condition is nearly always present and frequently to such a degree that a satisfactory natural view of the caruncle is almost prohibited; hence the old and still frequently employed term of "angular" conjunctivitis. As a rule the palpebral mucosa shows a very moderate degree of swelling, with some hyperemia predominating at the lid margin and in the cul-de-sacs. The bulbar conjunctiva seems to be less perceptibly affected and only occasionally one notices a slight redness and an engorgement of the superficial veins in the neighborhood of the lid angle. Now and then one does detect phlyctenules, but they are generally only noticed in children or in those possessing a scrofulous diathesis.

Notwithstanding the fact that the disease is one of those subacute forms which border on the chronic type, one does occasionally come upon acute manifestations, as Axenfeld stated in one of his early contributions on the subject. The recent statistics of Inglis Pollock confirm these conclusions. The latter found nine out of a series of sixty-two cases with acute symptoms. Although the disease is attributed to a specific germ, it must be conceded that many factors are at work which render the field affected more susceptible to contagion. Consequently, diplobacillary conjunctivitis is no departure from many of the ordinary chronic types of the disease. Heat, smoke and uncleanliness, with poor personal hygiene, as well as the presence of bad air and dust, and the abuse of alcohol and tobacco, are all potent factors, adding their quota toward the diminution of the resisting power of the tissues affected.

COMPLICATIONS.

Complications involving the cornea are comparatively rare, but are more frequently found than the earlier writers on this subject would lead us to believe. True it is that ulcers, when they do occur, are, as a rule, of a very benign nature, situated near the corneoscleral margin, and show very little loss of tissue. They have a smooth, glistening base and regular edge, healing rapidly under suitable treatment. But, on the other hand, there are cases much more severe in type in which considerable loss of tissue, hypopyon and iritis are some of the graver symptoms and the diplobacilli have been found in scrapings from the bases of the ulcers. These ulcers, however, do not correspond in detail to the serpens type, as they are generally round; they do not tend to spread, and in nearly every case heal under zinc therapy. Erdmann, of Rostock, reports thirty cases of ulceration of the cornea occurring in three hundred and forty-two patients in which the diplobacilli were found to exist. Axenfeld, Morax, Biard and Peters all recognize the fact that ulcers occasionally occur and that they readily disappear under suitable treatment. Regarding corneal ulceration, however, we must be



SECTION OF LID NEAR CUL-DE-SAC.

1. Mucoid and epithelial débris.
2. Infiltration of leucocytes in adenoid layer.
3. Marked increase in number of goblet cells.

guarded in respect to that most virulent of microörganisms, the pneumococcus. It is a very potent factor in cases of abrasion of the corneal tissue and might readily be present with the diplobacillus.

In cases of long standing we may occasionally recognize slight degrees of ectropion, distichiasis and eczema of the lids. Follicles may also be occasionally seen, but when present in any numbers one should expect the diplobacillus of being a coincident infection with the much more serious condition of trachoma.

It is interesting to observe the diversity of opinion regarding the presence of the diplobacillus in the nose. Baird frankly states that it is very frequently found there and considers that the condition in the eye is often an extension of the infection through the nasal passages. Lobanow indorses this view and adds that he has frequently found it in the angles of the mouth. Erdmann found diplobacilli in the nose of forty-two out of the sixty-seven which he examined. Petit, on the other hand, with zur Nedden, states that it is not present, alhough they recognize that a similar organism, the œzena bacillus, may be found in the nostrils. This, however, is capsulated and grows quite differently to the diplobacillus. I examined the nostrils of a few patients in Axenfeld's clinic who showed unmistakable evidence of the diplobacillus in the conjunctiva, but was never able to detect the bacilli in any of the preparations which I obtained from the nasal mucosa.

BACTERIOLOGY.

When a small piece of mucus from a patient suffering from subacute blepharo-conjunctivitis is carefully spread on a cover-glass and properly stained, the diplobacilli may be found in large numbers. They may appear free or, on the other hand, may be detected in epithelial or pus cells, more frequently in the former. As this disease is a subacute form, bordering on chronic rather than the acute, one does not come upon the same degree of phagocytosis and subsequent cellular exudate in the discharge, as in cases of infection by the Koch-Weeks' bacillus or by the pneumococcus; the secretion found in diplobacillary conjunctivitis consists largely of fibrin.

The bacilli are detected, as a rule, in pairs, although they are occasionally met with in the form of short chains, sometimes longer, but always with a distinct area of intersection between each component part. Each of these parts measures 2 mm. long by 1 mm. in width, but this measurement is variable; larger forms are sometimes found, while, on the other hand, young forms, or those resulting from frequent transfer, are often smaller than the dimensions already referred to. The bacilli are regular and plump, with rounded square ends, like a depressed right angle, and have a definite thickness throughout. Occasionally the ends appear somewhat swollen, and now and then the poles take the stain a little more intensely. The whole bacillus, however, stains so deeply that it is difficult to differentiate on this matter. The diplobacilli are decolorized after the use of Gram's solution.

As to whether the diplobacillus has a capsule is still a point at issue. Morax claims that it has none. Axenfeld says that it is not sufficiently distinct to be seen clearly. On the other hand, Gifford, Hoffman and zur Nedden say that it is inclosed, while Bietti is still more emphatic in his assertions. Certain it is that the diplobacillus has nothing in the form of a capsule corresponding in distinctness to that possessed by the Friedländer's pneumonia bacilli or by the so-called œzena bacilli.

The diplobacilli can only be grown at blood heat on serum or on a medium of agar containing serum, as well as in such media as hydrocele and ascitic fluid. It is best grown on Löffler's alkaline blood serum. The first evidence of growth is noticed in twenty-four hours, when areas of unevenness are seen on the surface of the serum; these areas are moistened and depressed, and, becoming larger, they liquefy and tend to coalesce. No change of color takes place in the culture media. The surface of the medium has the appearance of having been gouged out. The fluid formed by the liquefaction resulting from the growth of the colonies sinks to the bottom of the tube, and these punched-out areas can later on be very distinctly seen. In about fifteen days the microörganism has extended almost as deeply as is possible. As a rule liquefaction is not complete, as the diplobacilli in the meantime have begun to die, and one sees only involution forms in the fluid. On serum agar the colonies of the diplobacilli are of smaller size; they appear as opalescent, flat droplets, of grayish color, and somewhat resemble the pneumococcus growth. On magnification they are seen to be granular, of rounded shape and smooth edge, and are slightly prominent, with a tendency to coalesce.

In serum bouillon, after twenty-four to forty-eight hours, a distinct cloudiness is apparent and a somewhat fine deposit forms, which can be readily shaken up. Diplobacilli do not grow on plain agar as a rule. If they do grow, as some observers assert they do, the growth is very scanty and they soon die. They do not show the long-continued activity of the diplobacilli of Petit, which grow readily on ordinary media. Axenfeld reports a case recently where a culture taken from a patient suffering from diplobacillary conjunctivitis, curiously enough, grew better on agar. Also that a gelatin stab culture produced a growth and liquefaction as in Petit's diplobacillus. Later on this could not be produced. This case, however, is an exception. The diplobacilli require alkalin media; neutral are unsatisfactory, while acid are distinctly so. It is, consequently, explained how in a mixed infection of staphylococcus aureus, whose growth in media tends to produce an acid reaction, the growth of the diplobacillus is in consequence impeded. On the other hand, diplobacilli flourish with xerosis, which do not produce this change in the culture reaction. With the ordinary staphylococci of the conjunctival sac, growth does not seem to be impeded. These last mentioned are frequently found in company with diplobacilli, but in much fewer numbers. One may, however, frequently find the diplobacilli in the conjunctiva in pure culture, although mixed infections of pneumococci, staphylococci and Koch-Weeks bacilli occasionally occur. Cilia and spore formation have never been shown to exist.

PATHOGENICITY.

Morax claims that animals are immune to the disease and bases his conclusions after using a culture of the diplobacillus on the conjunctiva, hypodermically and by intraperitoneal injections. On the other hand, an assistant in his clinic who volunteered showed a distinct reaction in twenty-four hours after a drop of bouillon culture had been instilled into his eye. Notwithstanding this fact, if a routine examination is made of conjunctival secretions the diplobacillus is frequently found where no physical signs are indicated and where no discomfort is complained of by the patients.

The diplobacillus stands drying well, as has been shown by McNab and more recently in a monograph by Erdmann. The latter says he was able to grow cultures from pieces of dried linen which had been soaked fourteen days previously in a bouillon culture and subsequently subjected to dry heat. To prove that the diplobacilli may be distributed through the air, Axenfeld placed Petri dishes at one end of his operating room, and after speaking before them at some distance he noticed a growth some hours later. This holds true for bacteria other than the diplobacillus. To obviate this possible means of infection he has arranged a very simple device called a "Mundschleir," or mouth veil, which consists of a bow of wire passing beneath the nose over the upper lip and behind both ears; from this one or two thicknesses of sterile gauze are suspended. This covers the mouth, mustache and beard and prevents many opportunities of bacteria being carried to the patient from the operator in the act of speaking. The same device has been adopted in the Boston Eye and Ear Infirmary on G. S. Derby's suggestion.

BACTERIOLOGICAL DIAGNOSIS.

The only bacilli which resemble it in shape and size and are decolorized by Gram's solution are Friedländer's pneumonia bacilli, the so-called œzena bacilli and the *Bacillus liquefaciens* of Petit. Regarding the two first mentioned, the diagnosis is comparatively simple. After staining, a well-defined capsule can be made out about the pneumonia bacillus and œzena bacillus which most authorities agree does not exist in the case of the diplobacillus of Morax-Axenfeld. Those who favor its presence in the last mentioned can only say that it is very indistinct. Furthermore, the two previously mentioned appear to flourish on ordinary media and are pathogenic to animals. Regarding the *Bacillus liquefaciens* of Petit, we have a more complicated question to deal with. Those best acquainted with it say that it grows equally well on agar as on serum and that it readily attacks the cornea. I have seen one case, that reported by McNab in the *Klinische Monatsblätter* of 1903. I had the opportunity of following the case out with him. The organism certainly grew well on gelatin or peptone agar, while the patient from whom the original culture was obtained had a very well marked ulcer of the cornea. The corneæ of two rabbits were inoculated, and that with the Petit's bacillus showed a fairly well marked corneal infiltration, with a very slight degree of hypopyon. This may or may not have been produced by excessive zeal on the part of the operator; true it is that two or three inoculations were necessary before the above-mentioned indications could be observed. Repeated attempts on the cornea of the other rabbit with Morax-Axenfeld's diplobacillus resulted in a negative result. Considering the fact that corneal troubles are noted more frequently of late complicating a Morax-Axenfeld conjunctivitis, Paul, in his recent article on the subject, begins to doubt if the two are not, after all, identical, or if that of Petit is not a so-called sport of the Morax-Axenfeld diplobacillus. McNab tells me that he is coming to form the same conclusions and considers the Petit's bacillus merely a more virulent form of the one with which I have been dealing.

THERAPY.

Zinc seems to act as a specific in all these cases, and when employed systematically will invariably cure the disease. Severe forms of corneal ulceration where the diplobacilli have been found in the bases of the ulcers have been satisfactorily treated and cured by the constant application of a zinc solution. Its use is recommended in the form of a zinc sulphate as 0.5 per cent. to 1 per cent. solution. The drops are instilled into the conjunctival sacs at frequent intervals. In some severe forms cold compresses of the solution kept on the eyes constantly are of decided benefit. Many consider that the above strength of the solution produces too much pain and that patients in this country can not stand such heroic treatment; they claim that equally beneficial results are to be obtained after using 0.25 per cent cent. solution. To obviate the element of pain which the zinc doubtless does produce, Peters and Sehlen have recommended an ointment of ichthylol ammoniacal, amidon, oxid of zinc and vaselin. In their experience it has produced satisfactory results.

PATHOLOGY.

Microscopically we see that the squamous epithelium of the lids is extending as far as the lid margins. At the outer edge and at the margin of the lid itself numerous epithelial saccules may be noticed dipping into the deeper structures. The squamous epithelium covering the skin of the lid margin is distinctly thin, the outer horny layer being practically absent. Here there has doubtless been a distinct loss of tissue. The columnar epithelium of the palpebral conjunctiva does not consist, as in the normal, of two, but of four, five and six layers.

Leucocytes may be seen between these cells in varying numbers, and in some places they are so numerous that they completely include the cells. In the adenoid layer proper near the inner lid margin one notices a number of epithelial saccules, the so-called glands of Henle. Between these epithelial saccules and the true epithelial layer one finds a few goblet cells, with their characteristic crescent-shaped, depressed nuclei at the bottom of the cell bodies, and with their stomata directed outward toward the mucous surface. As we progress nearer the lower cul-de-sac the more frequently do we come upon these goblet cells to such a degree that at the transition fold the conjunctiva seems to be practically covered with them. On the upper lid the conjunctival epithelium consists of two layers only; here again we notice these epithelial depressions or saccules, while goblet cells can be found in enormous quantities in the neighborhood of the upper fornix.

In the deeper-lying connective tissue of the lid beneath the adenoid layer the cells are completely surrounded by an infiltration of round cells, which appear as dense masses in some localities. These are more frequently found in the more superficial layers of the submucosa, the deeper structures not being involved. This condition is scarcely noticeable in the conjunctiva bulbi.

The meibomian glands in some places have proceeded to cyst formation and the epithelial cells lining these glands are frequently found to be broken down. This is doubtless due to the fact that the stomata of the glands have been choked by the débris and discharge lying about the conjunctiva. as well as by the engorgement of the more superficial cells. Calcareous degeneration could, consequently, be readily accounted for. In the conjunctival sac, as well as in the spaces between the cilia, a mucoid secretion containing epithelial débris and pus cells is found. That formalin is used to fix the specimen probably accounts for the fact that the bacteria could not be found in this discharge or anywhere else in the sections. Stock and Paul have both noticed this same coincidence after finding unmistakable evidence of their presence during life.

Microscopically this form of conjunctivitis is to be differentiated from the following:

1. Koch-Weeks' conjunctivitis. Morax has shown, after excising a piece of his own conjunctiva previously infected with a Koch-Weeks' culture, that the bacilli in question could be demonstrated in the superficial layers of the epithelium, while none was present in the more deeply lying tisues. He found that the leucocytes were aggregated between the epithelial cells in the form of a well-marked round-cell infiltration, that the vessels were dilated and engorged; in other words, a picture of a very acute infection.

2. Blennorrhea can be readily excluded. Here the surface appears in characteristic rolls or folds, while that in the case of Morax-Axenfeld conjunctivitis is always smooth. The presence of the diplococcus of Neisser will always assist one in the diagnosis.

3. Conjunctivitis pseudomembranosa is recognized at once by the characteristic false membrane of diphtheia and by the necrosis of the lid which one finds in such cases and which is never present in the condition I have been dealing with.

The only chronic form which might possibly be confounded with this type of conjunctivitis is trachoma. In blepharo-conjunctivitis of the subacute type follicles are practically absent and no scars in the palpebral mucosa are to be detected. In addition, the lid margin assumes certain characteristic features not seen in trachoma, such as a swelling of the superficial squamous epithelial cells. The epithelial lined saccules previously referred to are also not to be found in trachoma. The thinning of the surface epithelium at the lid angles and the fact that in trachoma a condition of entropion exists rather than the reverse, as in the case of Morax-Axenfeld conjunctivitis, are additional distinguishing features.

STATISTICS.

A mere reference to this matter must suffice. In some parts of Russia and Germany the disease may be said to be endemic; a compilation of the findings of routine bacteriological examinations would frequently reveal the fact that the diplobacillus is present more frequently than all other known forms of conjunctival pathogenic bacteria. Our acquaintance in Montreal with the bacillus in question has been of too brief a duration to have allowed us to arrive at any definite conclusion concerning a percentage or proportion. That we have occasionally met it and recognized the condition, verifying our observations by subsequent bacteriological investigation, shows that the diplobacillus is here. It is generally found among the foreign element.

Regarding its presence in English-speaking countries, Eyre, of Guy's Hospital, found it in 2½ per cent. of all patients attending his clinic. Inglis Pollock, of Glasgow, found it in 17 per cent. of all the patients suffering from conjunctivitis, not including trachoma, or in 74 per cent. of all forms of subacute conjunctivitis which came before his notice. I have found it present in 14 per cent. of all forms of conjunctivitis, not including trachoma. My figures were obtained after a service in the ophthalmia schools of Swanley and Brentwood, England, directed by the London County Council. I attribute this comparatively low percentage to the fact that by far the largest number of patients were suffering from trachoma and that I excluded this form of the disease in my bacteriological examinations. That the age of the patients varied from three to sixteen when diplobacillary conjunctivitis is not so frequently met with as later in life may also account, in a measure, for this low percentage. Mr. Treacher Collins, under whom I was working at the time, told me of an instance when there was an outbreak of the disease in one institution and that 70 per cent. of the inmates and employés were found to be suffering from the disease.

In conclusion I express my sincere thanks to Dr. Wolfgang Stock, of Freiburg, for his kindness in supplying me with specimens which have enabled me to present the pathological features of the disease. It would have been impossible to have done this without them, as his specimens on the pathology of the lid in such conditions are unique. I should also like to record my appreciation of the interest he has taken in my work and his many previous kindnesses.

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A SUCCESSFUL OPERATION FOR CONICAL CORNEA.

WITH REPORT OF A CASE.

Fred Stauffer, M.D.
SALT LAKE CITY, UTAH.

On August 22, 1901, Miss M. B., aged 19 years, medium sized, well developed, blonde, came to my office for examination of her eyes. About two months previously her family had noticed an unnatural appearance of the right eye and they thought something was growing on it.

The cause of this was readily made out to be a very pronounced conical cornea. The patient herself had not observed the loss of her vision in right eye until I covered left eye in making visual test. Vision in left was 6/6 and ophthalmometer showed corneal curvature to be normal. Homatropin and cocain mydriasis reveal the fundi and media normal in both eyes, excepting a pronounced cone in right cornea. Refraction in left was found normal, tension also normal in both. The patient had experienced no inconvenience whatever in her eyes; her only reason for consulting an oculist was because of the appearance of the right eye. As the conus was too far advanced to hope for any improvement from medical treatment or from use of pressure bandages, I sent her home without treatment, cautioning her against excessive use of the eyes for near work, with instructions to report for treatment upon first signs of failing sight in left.

Just two years later, on August 3, 1903, she returned, complaining of failing sight in left. Vision now equaled 6/24. Ophthalmometer showed increased convexity of cornea, with ax. 135, 3 D. stronger than 45°. By prescribing proper lenses vision was brought up to 6/6. Up to this time the cone in right cornea had made no perceptible change since previous examination. Patient was instructed to wear correcting glasses for left constantly and to apply pressure bandages at night and to report any future change or loss of vision.

About the middle of December, 1903, she presented herself for treatment with a small ulcer on apex of cone in right cornea, which was causing some pain. Notwithstanding constant treatment, the ulcer gradually spread and grew deeper until December 28, 1903, it was 4 mm. in diameter and had penetrated so deeply into substance of cornea that I feared loss of eye from perforation and infection. Believing that the chances for saving the eye were better by operating than to allow the cornea to perforate spontaneously, I obtained permission from the patient and family to operate. In looking over the literature at my command I found but little comfort from the recorded results of the various operations described. I finally decided to remove an elliptical piece from the entire thickness of the cone of cornea. Bader, who is reported to have frequently done this operation, says that it is always followed by adhesions of the iris to the corneal wound, which afterward necessitates iridectomy. It was to avoid this complication that I conceived of the following modification of his operation, for which I claim originality. I feel that the result of this operation in my patient warrants a detailed report:

The pupil was well dilated with atropin, the eye thoroughly cocainized and the eye speculum properly placed; a small curved needle armed with fine black silk ligature was passed through the cornea into the aqueous chamber about 3 mm. below and 2 mm. to the nasal side of center of cornea and brought out above at a corresponding point. A second suture was placed through the cornea about the same distance below and above the center on the temporal side. An elliptical piece about 3 mm. broad and 6 mm. long was then excised from the whole thickness of the cornea between the sutures thus placed. The first incision was made with a Graefe knife by transfixing the cornea at the point where the temporal angle of the ellipse was desired and carrying the knife through the aqueous chamber, making counter-puncture at point desired for inner angle of ellipse. The cutting edge of the knife was directed downward and forward and brought through to complete the lower incision. The desired amount of corneal tissue was then removed with a pair of small curved scissors. As soon as the excision was completed the sutures previously placed were tied and the corneal wound closed. It is needless to say that great caution is necessary to avoid injury to lens or its capsule after the first incision is made. The eye was dressed with a moist boracic-acid gauze pad and a bandage loosely applied to avoid pressure of lids against sutures. In twenty-four hours the aqueous had reformed and wound was closed. On January 10, 1904, twelve days after the operation, the corneal wound was firmly united, there remaining only a linear opacity in the line of incision, and at four points where sutures penetrated cornea. The patient was discharged with instructions to return for refraction in three months. She presented herself for this purpose on Sept. 10, 1904, when only a slight central opacity of the cornea was visible. V. = 3/60 and with — 16.00 sph.—3.00 cyl. ax. 30 V. = 6/36. With—13.00 sph. — 3.00 cyl. ax. 30 she can readily read Snellen No. 4 type.

On March 15, 1906, patient came to my office at my request for examination of eyes. There still remains a small central corneal opacity, which was, in my opinion, due to part of the ulcerated cornea not having been removed in the operation, as there remained no other opacity in sight of incision. Visual test showed practically no change in corneal curvature during the eighteen months which had elapsed between the first and last tests since the operation, notwithstanding the fact that she was married in September, 1904, and in July, 1905, gave birth to twin girls. It is worthy of note that the vision in left eye has not diminished since glasses were first prescribed in 1903. Having made several tests in left, I was able to note frequent change in the axis of stronger curvature of cornea. On March 15, 1906, when last test was made, V. = 6/18; with — 2.00 cyl. ax. 90 = 6/6 —, while on Feb. 5, 1905,—0.75 sph. — 1.50 cyl. ax. 135 gave V. = 6/6. This frequent change in the cornea perhaps accounts for the patient discarding her glasses. Since the operation she has done all her household work, including family sewing, with unaided eye, and, as she puts it, she can see "just fine."

In conclusion I wish to note that there remains 16.00 D. of myopia in weakest diameter of the operated eye, which I believe could have been reduced to normal had there been sufficient of the cornea excised in the operation. It is my opinion that if the operation had been performed before the ulcer had formed, or if all the ulcerated cornea had been excised, there would not have remained any perceptible corneal opacity and hence much better vision would have been obtained. Do the results obtained in my patient warrant the assertion that it was a successful operation? You may draw your own conclusions from the following facts: In August, 1901, the vision in eye was nil and it could not be improved by any combination of lenses, while on March 15, 1906, more than two years after operation, distant vision was brought up to 6/36 and reading to Snellen No. 4 type with proper lenses. And as there has been no perceptible change in vision since the operation we may reasonably expect that she will always retain useful vision.

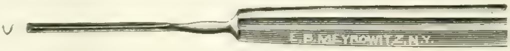
SOME NEW FOREIGN-BODY INSTRUMENTS.

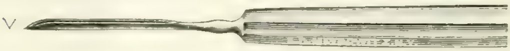
By Frank C. Todd, M.D.

MINNEAPOLIS, MINN.

(Illustrated.)

In attempting to remove a foreign body from the cornea by the use of a pointed spud the operator often finds much difficulty because of the fact that the point slips off one side or the other, while the blunt spud will not remove very small bodies, such as pieces of metal, particularly when they are deeply embedded in the cornea. I have used the round, grooved instrument in such cases, but have found the instruments which are here illustrated of greater service. One of these, the lower in the illustration, is V-shaped and picks up a very small body. The too sides of the V surround the body, so that it will not slip off either side. I have had these made beveled on the flat, in several angles, one of the pointed ones being shown here. The instrument represented in the upper illustration has a groove half-way between a V and a half-round curve. It is of value in extracting foreign bodies larger in size.





These were made by E. B. Meyrowitz.

TRANSILLUMINATION OF THE EYE IN THE DIFFERENTIAL DIAGNOSIS OF INTRAOCULAR TUMORS, WITH DESCRIPTION OF AN OCULAR TRANSILLUMINATOR.*

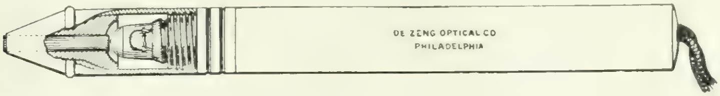
By H. V. Würdemann, M.D.

MILWAUKEE, WIS.

(Illustrated.)

Tumors of the external portion of the eye, the iris, and ciliary body can be determined by inspection, this being materially assisted by the magnifying-glass or loupe—especially the binocular form—and the use of a condensing lens for oblique illumination. In the first stage of tumors situated behind the ciliary body, more particularly of the retina, the choroid and nerve, the ophthalmoscope may present a fair view of the growth, yet here the diagnosis may be confused with simple detachment of the retina and with pseudoglioma or chronic suppurative chorioiditis.

Transillumination of the eye is a most useful method for differential diagnosis. This consists of sending a beam of light through the globe, in a dark room, whereby the whole eye, if normal, is usually illuminated, or if an opaque foreign body, such as a tumor, be present, a shadow will be shown in a similar way to that given by transillumination of the face in disease of the maxillary or frontal sinuses. Instruments for the purpose have been devised by Leber-Sachs and by Rochon-Duvigneaud. Without criticising certain defects of these instruments, made apparent by my use of them, I desire to exhibit a model devised by me which has been made by Mr. H. L. DeZeng, of Philadelphia. This is a simple attachment to the handpiece of his electric ophthalmoscope. It is very efficient and inexpensive and it does not get hot, like the instruments designed for the same purpose by Europeans. The entire instrument is not much larger than an ordinary fountain pen, and it may be handled in the same manner. (See figure.)



The small electric globe in the ophthalmoscope is replaced by another of five-candlepower, on the end of which there is a lens. The cone-shaped screw cap of the instrument contains a 5 mm. glass rod, about three-fourths of an inch in length, which comes in contact with the end of the lens. Nearly all the light is thus focused in the glass rod and brought out through it to the tip of the instrument and from there projected as a beam of light through the eye or the structures to be illuminated.

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* Exhibited to the Milwaukee Oto-Ophthalmic Society, April 3, the Chicago Ophthalmological Society, April 10, 1906.

In addition to its use for ocular transillumination, without any adjustment the instrument is sufficient for illuminating the frontal and ethmoidal sinuses, bridge of the nose and the mastoid process. By removal of the screw cap and cylinder the light is exposed, and it is my custom to simply wrap a piece of gauze around the handle and to have the patient hold the instrument in the mouth when desirous of illuminating the maxillary sinuses.

RECENT IMPROVEMENTS IN PERIMETRY.

Frederick A. Davis, M.D.
DENVER, COLO.

(Illustrated.)

During the last year or two a number of new methods for the examination of the visual field have been discussed in foreign journals. Of these the most important are the methods of Hess,[1] of Schloesser,[2] and of Haitz[3] for the determination of central scotoma, and Sinclair's[4] revival of Bjerrum's method applicable to the whole visual field. Not only are these methods, of course, not yet described in any text-book of ophthalmology, but, after a pretty thorough search among the manuals in common use, I find no detailed description of any method for the determination of central scotoma except in Jackson's[5] work. In this book the author describes his own procedure as well as the one devised by Uhthoff, in which a ring-form test-object is used.

The method by means of the perimeter is doubtless too simple to need description, but its performance is rendered difficult from lack of good fixation in the eye to be tested, and because of the length of time consumed in mapping out the scotoma causes conflicting answers from retinal exhaustion.

With the parallel test of Donders[6] the observer can watch the patient's eye and detect any wavering in the fixation; but the scotoma can only be roughly outlined.

To improve fixation as well as to trace the outline of scotomata,

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[1] Archives of Ophthalmology, November, 1905.
[2] Klin. Monatsbl. f. Augenheilk., January, 1905.
[3] Klin. Monatsbl. f. Augenheilk., October, 1904.
[4] Trans. of Ophth. Soc. of United Kingdom, session 1904-5, p. 384.
[5] Manual of Diseases of the Eye.
[6] Archiv. f. Ophthalmologie, vol. iii, No. 1, p. 147.
[7] Archiv. f. Ophthalmologie, vol. lvi, No. 1.

Uhthoff and Gruenert[7] devised ring-form test-objects which were relatively a great improvement on the methods hitherto in use.

The procedure known as the Hess method was another step in advance. Defective fixation here is no obstacle and the extent of the scotoma may be accurately mapped out. Professor Hess[1] thus describes it: "Little white disks arranged in regular rows on a black ground were made visible by means of momentary illumination. One or more of the disks could be made invisible by covering them with black paper. The patient is placed at such a distance that a smaller or greater number of the disks will be pictured on the region of the retina undergoing examination, and has to state whether at the moving of the shutter all the disks are visible or not, how many are absent, and what are their respective positions. If this experiment is repeated several times, and the patient always gives correct answers, a scotoma is certainly excluded from the area under consideration. If in an investigation the white disk whose image would fall on the blind spot of a normal eye is covered, the patient can not see that it is covered and makes a false statement if he tends to complete the picture. Every normal eye has at a point corresponding to its foveal region a blind spot with a sufficiently lowered illumination and a relative scotoma when the illumination is less lowered (lessened foveal sensitiveness of the eye adapted to the dark). If 16 or 25 little white disks are arranged in 4 or 5 rows of 4 or 5 each, on a black background, at a satisfactory distance apart, and placed at such a distance from the eye that the image of one will fall on the entrance of the optic nerve, that disk will appear absent from the row, the pattern will appear defective and will not be completed. The same will be found true of the foveal scotoma by reduced illumination; there will be no completion of the picture.

Professor Uhthoff and his associate, Heine, have contended that only a positive scotoma can be recognized by the Hess experiment. Heine discarded the Hess method in testing for the central scotoma in congenital amblyopia, such a scotoma being always negative. In fact, in one case thought to have multiple sclerosis it was decided that the loss of vision and the central scotoma were due to a congenital amblyopia, because the Hess experiment had failed. Every ophthalmologist encounters cases of adults who discover for the first time at the examination that one eye has defective vision. A means for the differential diagnosis between a congenital and an acquired amblyopia would, therefore, be a great boon. It seems doubtful, however, if we yet possess it.

Heine's article on "Central Scotoma in Congenital Amblyopia"[2] appeared in January, 1905. According to him nothing is easier than the recognition of a central scotoma in these cases. It can be as easily demonstrated as Mariotte's blind spot, the only difficulty being defective fixation and sometimes vicarious macula, the result of an effort to bring the image upon a better functioning part of the retina. Heine uses the Schlosser binocular test, and according to him it will reveal any scotoma, whether positive or negative, absolute or relative. The test is based upon an experiment of Hirschberg's, as follows: "If one eye be covered with a red glass, then this eye can not recognize a properly selected green, i. e., its complementary color; in the binocular field where green is recognized it is done with the uncovered eye.

If in certain areas green is seen darker, there is a relative scotoma; if not seen at all, an absolute scotoma for green. In a similar manner we may test the field for scotomata of red or blue, using for the former test a green and for the latter a yellow glass before the better eye. We may even test with white test objects the fixing eye having a red glass, and the white object will take on a red color in the case of an absolute scotoma; in the case of a relative, a gray color. The patient is enabled more easily to hold the eye still, for the fixation falls to the good-seeing eye, while the muscular innervation maintains the amblyopic eye in a constant position.

Heine's conclusions are as follows: The visual defect depends on the size and the intensity of the scotoma.

The size of the scotoma bears no relation to the degree of the strabismus.

He thus tabulates his cases:

Vision with correction	C 1/2	C 1/3	C 1/6	C 1/10	C 1/20	C < 1/20
Number of cases	14	16	8	11	17	34
Central scotoma proved	10	14	7	10	16	33

Central scotoma was recognized in 90 per cent., doubtful in one case, absent in nine, of which number two had V = ½, two V = ¼, two V = 1/10, one V = 4/60 and one V = 1/60. Slight peripheral shrinkage was noticeable in only two cases. Heine seems quite positive in his statement that no congenital scotoma can be subjective. It is to be hoped that more work will soon be done upon this important question and that his work will lead to the measuring of central scotomata before and after treatment.

Thanks to Coover,[8] we can now improve the vision with the high-frequency current in the majority of these cases. We do not understand how the current does its work or what effect treatment may have on the scotoma. Heine thinks that finding a scotoma so

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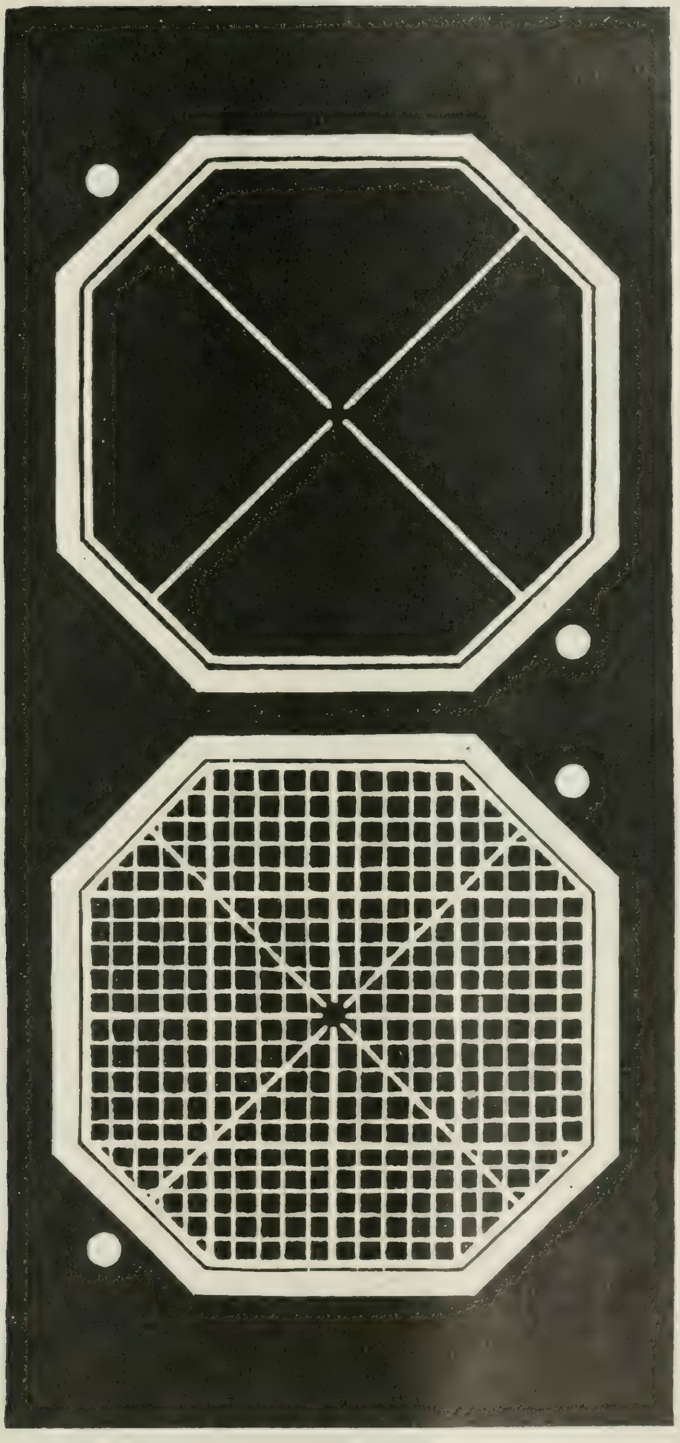
[8] New York Med. Jour., Oct. 14, 1905.



constantly speaks against ex-anopsia as a cause and in favor of a congenital condition. He thinks the seat of the lesion is in the retina, but has investigated an amblyopic eye microscopically with negative results. Improvement in vision he mentions in but one case and regards the case as unique in this respect. In this case accompanying an improvement of 5/60 to 5/30 a diminution in the size of the scotoma from 8° to 5° was observed.

At first Landolt[9] and Schwartz and later Haitz[3] have criticised the Schloesser test. Some confusion and competition may occur when one eye is covered by the complementary color, especially in the case of the red glass, and Haitz points out some difficulties in the test with a white object. To retain the benefits derived from a binocular method and to escape the said difficulties Haitz has devised a stereoscopic method. Rapid as well as accurate measurements of central scotomata may be made with his apparatus. It has the advantage that it introduces into the visual field contour lines and control disks, the former stimulating the fusion faculty, the latter serving to prove that the visual act is binocular. I translate freely from Haitz:

"The Holmes stereoscope is the form used. The half-lenses should have a radius of curvature of 20 cm. and a focal length of about 19 cm., i. e., with a refractive power of 5¼ diopters, respectively. The lateral separation of the optical centers situated in the bases is between 8½ and 9 cm. Theoretically, of course, the visual lines should be parallel, but practically it was found that a distance of 8 cm. between the centers of the two campimeters was best, and this, too, whether the accommodation was paralyzed or not. Indeed, it seems to be even more difficult for a patient with the accommodation paralyzed not to converge slightly. The Holmes stereoscope will measure 10 around the fixation point, or at most 20, when the patient fixes the end of one of the meridians instead of the center of the figures."

The stereoscopic campimeter which Haitz has originated I reproduce, enlarged to the size recommended by him. It can be cut out and pasted upon a cardboard and is ready for use. As will be noticed further on in the author's description, the field should be made obscure, except for the diagonals and the counter lines. This can be done by penciling over the field with a soft lead pencil.

Haitz has also campimeters with ring-form contours like those recommended by Uhthoff and Gruenert, and these are suitable for the determination of small central scotomata.

The author directs: "All the campimeters should be printed on dull-gray carton, free from all reflections. The eight-sided figures should have strongly marked contours of clear gray. They have for their object to excite fusion. At the same time it is not necessary that the two campimeters be viewed in toto; when portions of each are fused they fulfill their mission. On both sketches are two diagonals and should appear in relief and, therefore, should be printed white. These spur the eyes to maintain the normal position as they cross at the fixation point and will double by vertical or horizontal deviation. There is a break in the center of each diagonal of 1 2/3 mm., or ½°, in order that the eye may not be blinded by any white at the fixation point and so be able to distinguish saturation differences. The campimeter which has division into degrees is always placed in front of the eye to be examined. Two control signs, disks, are placed at the ends of one of the diagonals in each figure, and if binocular vision is present four disks will be seen, one at each corner of the stereoscopic picture. The divisions on the campimeter are in degrees from 0° to 10°, so that two adjoining lines are seen under an angle of 1°. The size of the intervals was determined empirically by finding the nasal border of the blind spot in the horizontal meridian. Its distance from the fixation point was first measured in the case of a number of emmetropes in angle degrees on the perimeter, and then in linear units in the stereoscope. Neither the different interpupillary distances nor the distance of the eyes from the stereoscope lenses has any appreciable influence on the test. Tests are performed as in perimetry in general, but one should be careful to avoid holding the test-square over one of a common contour. If one is testing the meridian 45° the square should be drawn alongside, not over the diagonal. In going from the nasal side toward the middle of the field the carrier should be held upright. The holders should be of the size of a needle and the test objects of two sizes, one 1¼ mm. square and one 2 mm. square. The smaller one is to be used in testing the zone between 0 and 5, the larger the zone between 5 and 10. The Heidelberg color papers make the best test objects. Ametropes should wear their correction."

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[9] Handbuch Graefe-Saemisch, 1903.

Haitz found it impossible to construct a figure which would make a scotoma visible to the patient himself. If one arranges the disks in the field to be tested according to the Hess directions given above, and fixes the end of one of the diagonals, the disk corresponding to the blind spot will disappear. This phenomenon I have found most easily demonstrated with four disks 5 mm. in diameter, one occupying the center of each of the four triangles formed by the diagonal lines of the campimeter.

This paper has already exceeded the scope originally intended, but it would be incomplete without some notice of Sinclair's article upon the Bjerrum method. This method has laid in oblivion for some years, but Sinclair has been trying it in clinical work, has found it all that Bjerrum stated and recommends its use, especially in glaucoma.

The absolute limits of the field for white are first taken, in the usual manner, with a perimeter. The relative fields are then mapped out upon a campimeter of black velvet 2 meters square. The patient is placed at 1 meter and at 2 meters distance, and the test objects vary in size from 5 mm. down to 1 mm. Increase in the testing distance increases the size to which scotomata are projected, at the same time reducing the visual angle of the test object. His tests are carried out in diffused daylight. The refraction should always be corrected when using the small test objects.

In examining for glaucoma, begin by testing the blind spot. If illumination is good and vision is not yet too much impaired, the patient should be seated at 2 meters distance from the campimeter and a 1 mm. test object should be used. "The test object is carried around beyond the area of the blind spot and, when seen, is then moved radially to the blind spot, over its probable limits, and these as they are determined are marked out with black pins. Should the limit of the blind spot be traceable all around with the smallest (1 mm.) test object, then the case is not one of glaucoma. On the other hand, should the margin of the blind spot be traced in part, but in part only, then the case is one of glaucoma." It should be added that the area of defect is at the temporal side. "The area of most acute vision, as also the area of relative defect, are in contact with the blind spot and may be said to meet there. The effect of retinal exhaustion must not be forgotten, especially when the smaller test objects are used. From his clinical experience with the method, Sinclair recommends mapping out the areas where retinal exhaustion was sufficient to modify the shape of the field. "Out of 45 charts, 6 showed such areas, but out of these 3 showed the glaucoma symptom apart from the fatigue areas." An interesting series of charts accompanies the article.

I am indebted to Dr. Edward Jackson for valuable suggestions and for the use of his library. Dr. D. H. Coover has kindly loaned the plate which illustrates the article.

CHOKED DISK AND BRAIN TUMOR.*

Albert Rufus Baker, M.D.

CLEVELAND, OHIO.

Case 1.—The patient was a woman 28 years old, married about eight years. She has had one miscarriage; no children; good family history. Until about three years ago she enjoyed good health, when she began to have headaches, which were soon followed by difficulty in walking. Soon after this she lost her speech. About two years ago she was first admitted to the hospital, and when I first examined her I found that she had exaggerated reflexes, was unable to stand, unable to talk and complained of very severe headaches. Ophthalmoscopic examination revealed double choked disks. I made a diagnosis of cerebellar tumor.

She was operated on by Dr. Crile, who found a cyst of the cerebellum containing about eight ounces of fluid. As a result of the operation she was relieved of the headaches, speech returned and optic neuritis disappeared. She again was able to walk, but not very steadily. She was discharged from the hospital and returned to her household duties for about a year, when the headaches again returned, although not so severe as formerly, and she had much trouble in walking again. She was readmitted to the hospital, and soon after Dr. Wenner performed a lumbar puncture, removing about one ounce of fluid, but without any benefit. At present she is able to stand, but not able to walk without some support. She talks fairly well; complains of considerable headache and has a slight optic neuritis; no atrophy.

I have presented the case not only because it is an interesting one, but to call attention to the use of the ophthalmoscope in the recognition of brain tumors, a subject that has always been of interest to the physician and is now receiving much attention from surgeons as well. It is altogether probable that as great advances will be made in brain surgery during the next decade as have been made in abdominal surgery during the past.

Choked disk is a term that was introduced by von Graefe, and while his theory as to its cause may not have been fully substantiated by later ophthalmologists the broad distinction between optic neuritis and edema of the optic nerve is one that can not be disputed by any one who has had an opportunity to observe a large number of cases.

In optic neuritis we have an inflammation of the nerve structure itself, and the ophthalmoscopic picture is entirely different from that of choked disk, in which we have enormously enlarged and tortuous veins, contracted artery and swollen disk protruding into the vitreous with clear and distinct outlines. It is true that in exceptional cases of optic neuritis, such as is sometimes present in Bright's disease, we may have an appearance somewhat similar, but in these cases the disease is not limited to the optic papilla, but extends into and involves the retina more or less, so that one is not easily mistaken for the other. Authors tell us that choked disk is present in from 80 to 90 per cent. of all cases of brain tumor. It is altogether probable that it is even more frequent than this if cases of brain tumor were observed ophthalmoscopically throughout the course of the disease. It is not infrequent to find an optic neuritis present at one time and then almost entirely disappear, so that we can not say that optic neuritis is not or has not or will not be present from one examination.

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* Clinical lecture delivered at the City Hospital, Cleveland.

Choked disk gives us little or no information as to the location or size of the tumor. It is usually bilateral, although tumors of the orbit or tumors of the brain anterior to the chiasm may give rise to unilateral choked disk. I am inclined to think that choked disk is due to increased pressure, as claimed by von Graefe, although it is probable that the presence of the tumor sets up some nutritive change which causes increase of fluid, but whether one or both of these causes are present the result is the same: we have an edema of the optic nerve, which is probably a better term than choked disk—a condition analogous to that of edema of the lower extremities as a result of the tumor pressing upon the femoral veins or an ascites due to obstructed portal circulation.

As previously stated, the presence of choked disk determines the presence of brain tumor, but for the location of the tumor other focal symptoms must be taken into consideration. In the case before us, in determining that the tumor was a cerebellar one the peculiarity and difficulty in walking was the determining symptom. As you will see, there are exaggerated reflexes. The legs are well nourished, they are strong and muscular, but there is almost complete absence of co-ordination.

Much has been written as to the value of aphasia as a diagnostic symptom, but it has always seemed to me to be one of the least reliable as to localization. This question was raised in this case and we had considerable trouble in convincing our confrères that a tumor of the cerebellum might produce aphasia. I can not at this time go into an exhaustive discussion of the subject of cerebral localization, and yet I know none of greater interest to every physician, and believe it is a subject to which we should give our most careful consideration. You will probably find that a careful study of the eye and its appendages will prove of greater value than that of any other part of the body as an aid in cerebral localization.

Case 2.—Mr. ——, 45 years of age, is a railroad engineer. About three months ago he commenced to see double, at first only when he turned the eyes to the right, but soon after it increased so that the diplopia was present at all times. Soon after this he began to notice a failure in vision and yet at no time has he been unable to read the newspaper, but he could not read well without one eye closed. He also suffered from intense headaches. Owing to his diplopia he made a mistake in signals and had a wreck. The railroad surgeon in the hospital where he was confined for a month attributed his diplopia to his injury, but he has confessed to me that he saw double before the smashup, but that he was afraid to make this confession to the railroad surgeon, as he might thereby lose his position. He came home to Cleveland three weeks ago, when he first came under my care.

I found him suffering from paralysis of the right external rectus and enormously choked disk of both eyes; severe headache and some disturbance in walking. He gave a history of having had syphilis about fifteen years ago, so that I had no hesitation in making a diagnosis of gummatous tumor at the base of the brain on the right side, and I ordered the following prescription:

R. Hg. chlor. corros	gr.i
Pot. iodid	℥i
Tinct. cinch. comp.	℥ii
Aquæ q. s. ad	℥iv

Sig.: One teaspoonful in a glass of water three times a day after eating.

In addition I ordered four ounces of saturated solution of iodid of potash. Each day I added a teaspoonful of the saturated solution to the other prescription, thus increasing the dose 60 grains daily, until he was taking 450 grains daily. He has been taking this amount for about two weeks. His headache has disappeared, his appetite is good. He has slept well and the diplopia is gone, and the choked disk has almost completely disappeared, so that he considers himself well and wishes to return to work at once. I shall, however, insist on his remaining under my observation for some time. I shall now discontinue the iodid of potash and give him inunctions of mercury, and on the first intimation of a return of the brain symptoms will again give him the large doses of the iodid of potash. The mercury is to be continued for several months.

I wish especially to call your attention to the large doses of iodid of potash which I give in these cases. It is not an unusual experience with me to have such cases sent to me for consultation, and when I recommend 300, 400 or 500 grains of iodid of potash daily I am assured by the attending physician that the patient can not take such doses, and that they can not even take 15 or 30 grains daily without causing most serious digestive disturbances. It does seem somewhat strange, but I know of many of these cases who can not take 5 or 10 grains at a dose, but who will take 60 or 100 grains a dose and grow fat on it.

Case 3.—I have here another cases which also illustrates this point. This man is suffering from a disseminated choroiditis, probably of syphilitic origin. He also has been very deaf for the last four or five years. One week ago to-day I prescribed 300 grains of iodid of potash daily, which he has been taking regularly. He says there has been a wonderful improvement in his vision, that his hearing is better and, above all, that he has never had such a good appetite in his life. He enjoys taking these large doses, and upon my intimating to the house doctor that it might be well to discontinue them for a time he insists that he prefers to continue the medicine which is doing him so much good.

We had here a few years since in the hospital a case of a big Swede who had been in the hospital for some months, with a diagnosis of diabetes, as there was a small amount of sugar in his urine constantly. When I came on service I examined his eyegrounds and discovered choked disk, also paralysis of one of the extraocular muscles. I made a diagnosis of tumor at the base of the brain in the neighborhood of the floor of the fourth ventricle and put him on large and increasing doses of iodid of potash until we gave him 900 grains daily for a number of days. The sugar disappeared from his urine and he was discharged from the hospital well, and although this was a number of years ago I have seen the patient at work upon the streets recently.

I can cite numerous cases in which the patients have taken enormous doses of iodid of potash with the most gratifying results. It is a remedy to be used intelligently. The large doses are used for a short time and not continued indefinitely. I believe that when it is indicated it should be given in large doses and continued until the desired effect is obtained and then discontinued, and if always given on a full stomach, well diluted with water or milk, together with hot baths, I have never seen any serious digestive disturbances from its use. I am well aware that these are heroic doses, but the cases in which such doses are indicated are serious ones. It is a question of life and death, and if favorable results are to be obtained they must be gained quickly, and from my own experience in these cases I feel fully justified in administering these large doses.

I believe the large doses of iodid of potassium serve a useful purpose in cases of brain tumor not of syphilitic origin. I recall the case of a 16-year-old boy who was kept under observation for several months at the Cleveland General Hospital. The boy had been suffering from the most violent headaches for a year or more. He had been under treatment constantly by many of the leading physicians of the city, without relief, and was brought to me with the idea that possibly spectacles might benefit him. I found enormously swollen disks and made a diagnosis of brain tumor—the first time such a suggestion had been made. He was put into the hospital and given large doses of iodid of potash. One or two doses of 60 grains of iodid would relieve the headache, and when continued several days would cause a marked diminution in the swelling of the disks, but when the iodid was stopped, in the course of a week or ten days there would be a return of the headaches. Inunctions of mercury were tried, hot baths, pilocarpin and other remedies, but the large doses of iodid of potash alone gave him comfort. There were no focal symptoms whatever that would aid us in localizing the tumor.

At the end of several months the parents became discouraged at the slow progress of the case toward gaining permanent relief and concluded to take him home. On the second night after he left the hospital he had another attack of headache; a neighboring physician was called in and gave him a hypodermic of morphia. I was called the next morning, but the patient died before I saw him. The autopsy made by Professor Ohlmacher revealed a cerebellar tumor, centrally located, pressing upon the floor of the fourth ventricle. The ventricle was enormously dilated; it would hold nearly a pint of fluid. The tumor proved to be a glioma. Undoubtedly the large doses of iodid partially removed the fluid in the fourth ventricle and thus relieved the headache.

The young physician who gave the hypodermic of morphin was threatened with a suit for malpractice, and it was with considerable difficulty we kept out of trouble.

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Editorials.

DIONIN.

Since dionin is neither a mydriatic nor a myotic, it has been hard to understand how it can help atropia to dilate the pupil in iritis, and also aid eserin in contracting the pupil in glaucoma. Recent observations in a few cases of severe iritis, each case from 4 to 7 days old before coming for treatment, would seem to explain the action of dionin in iritis. In each of these cases there was not only complete adhesion of the pupillary margin of the iris to the lens capsule, but the pupillary opening was filled with plasma. Each patient was given a solution of atropia sulphate, gr. vi, to water, one ounce, and two drops of this solution were put in the eye every 3 hours, at the beginning, with longer intervals later. Dionin, 20 to 30 grains, to water, one ounce, was also prescribed, two drops of which were instilled into the eye in five minutes after using the solution of atropia. With the purpose of watching the effect of the dionin on the plasma in the pupillary opening, no sorbifaciant agent was given internally. It could be seen from day to day that the plasma was disappearing, and, in each instance, it had disappeared entirely at the end of one week. The pupil dilated slowly in either case, but in all there was practically complete dilatation. In two of the cases vision had been reduced to light perception, but in each of these vision is now about normal. In some of the other cases of the group, vision had been greatly reduced by plastic effusion in the pupillary opening. In two of the worst cases an unfavorable prognosis had been given, for in neither was it expected that either the plasma would be absorbed or the pupil dilated. The disappearance of the plasma that could be seen is proof that the unseen plasma, that binding the iris to the capsule, had also disappeared; that is, had been dissolved and carried out of the eye by way of the lymph channels. There is no room for doubting that dionin did this work. It is reasonable to conclude that dionin helps to dilate the pupil in iritis by its solvent effect on the plasma that would cause and maintain adhesions, and that it hurries out of the eye the dissolved plasma by opening the lymph channels. The relief of pain is another very desirable effect that should be placed to the credit of dionin. In the treatment of iritis this drug is invaluable, when used, of course, in conjunction with atropia.

How dionin aids eserin in contracting the pupil in glaucoma, and how some contraction might be effected by dionin alone, would seem not very hard to understand. By opening the lymph channels, thus encouraging the outflow of the watery contents of the globe, dionin lessens intraocular pressure, thus allowing a freer flow of neuricity to the sphincter muscle of the iris.

Not only is dionin helpful in the treatment of both iritis and glaucoma, but it is also a most helpful adjuvant in the treatment of corneal ulcers, in which condition it helps to control pain and by lessening intraocular pressure it favors healing. G. C. S.

Reviews.

PTOSIS AND THE OPERATION OF MOTAIS.*

H. D. Bruns, M.D.

NEW ORLEANS, LA.

[Reviewed by E. C. Ellett, M.D., Memphis, Tenn.]

In Bruns' experience, a large number of cases of acquired ptosis are due to syphilis, and in the first part of the article he reviews the plan of treatment to be used in the early stages. Much importance is attached to the use of mercury by inunction, and by combining a dram of belladonna ointment with each ounce of mercurial ointment (Arlt's salve) he believes the dangers of ptyalism are at least reduced to a minimum. Iodid, to be of value, must be given in large doses, and the help afforded by diaphoresis is fully appreciated.

Congenital ptosis and acquired ptosis, after a certain time, is amenable to surgical treatment only. The same is true of a variety of acquired ptosis which develops without apparent cause in middle-aged women, as described by Fuchs, and due, he thinks, to primary atrophy of the levator palpebræ.

The operation of Panas does two things: First, it shortens the lid, and, second, it enables the occipito portalis to act to better advantage on the upper lid. "It is but an awkward substitution of the physiologic action of one muscle for another." The operations for advancing the levator act largely by shortening the tarso-orbital fascia, except in rare cases of recent traumatic ptosis, with direct injury to the muscle.

Since Motais published his operation in the *Receuil d'Ophtal.*, in 1899, the author has had the opportunity to practice it five times, and from the published reports these seem to be the only cases thus far so treated on this side of the Atlantic. "The essential feature of this method consists in grafting of a slip from the tendon of the superior rectus into the lid between the skin and the tarsus." The following is a detailed description of the operation:

"A short distance above the upper margin of the cornea, over the insertion of the superior rectus (7 mm., Fuchs), an incision entirely through the conjunctiva is extended upward as far as possible, an assistant holding the lid back and away from the ball with a retractor or his finger; the lid is then everted and the incision continued through the cul-de-sac to the very margin of the tarsus. The conjunctiva is dissected up at each side of the incision and then well retracted so as to expose the tendon of the superior rectus thoroughly. A strabismus hook is passed beneath the tendon, a snip of the scissors on its end, through the capsule of Tenon, allowing it to pass freely from side to side until the tendon lies upon its shank. It is then pulled forward, to the insertion upon the sclera, and backward, toward the equator of the ball, so as to rip up the tendon as completely as possible. A fine but strong silk ligature, armed at each end with a small curved needle, is now passed through the tendon held on the strabismus hook, from without toward the sclera and then out again, in such a manner as to embrace the middle third of the tendon as close to its insertion as may be. The ligature is immediately firmly tied down. With fine scissors the bit encircled by the ligature is now dissected out of the insertion of the tendon and the incisions prolonged upward until a narrow slip, or tongue, comprising about the middle third of the tendon in width, and as long as may be without cutting into the belly of the muscle, is isolated. This is held at its free end by the double-needled ligature, and, unless the hold be firm and not likely to slip, the success of the whole operation is imperiled. If there be any risk of this, the tip of the slip had better be doubled back upon itself a short distance and the ligature tied tightly around the double portion once more. The lid being once again everted by the surgeon, the tip of his left forefinger being upon the skin overlying the tarsus, with a blunt-pointed scissors a dissection is freely made between the skin and the tarsus, beginning at the point where the original incision through the conjunctiva met the superior margin of the tarsus and continuing down to the free edge of the lid at its central point. With the lid still held everted on the surgeon's finger, one of the needles carrying the ligature made fast to the tendon slip is now passed between the tarsus and the skin, and is made to emerge through the skin of the lid at about 1/16 of an inch from its free margin; the second needle is passed in the same way and emerges through the skin at the same distance from the free lid edge as the first, but about 1/8 of an inch away, nearer the outer or inner canthus, as the case may be. By now drawing equally on the two threads, with little settling jerks and pulls, the tendinous slip is made to leave the plane of the levator and pass between the tarsus and the skin until its tip lies under the skin just above and near the center of the free lid edge. The slip is then made fast by tying the two threads over a very small roll of aseptic gauze. The end of the gauze and the eyelashes had better be cut close to the lid edge to prevent by any chance their rubbing against the exposed cornea. For, if the operation has been properly performed, the lid is now much puckered and drawn up at its central portion, as would be a curtain with a drawing string run through the middle of its width. The pupil is disclosed and the patient hardly able to cover the cornea by his own effort. For in this, as in all operations on the lids, the immediate effort must be greatly exaggerated, almost a caricature, if we wish the final result to be efficient and satisfactory. The lid being now well drawn away from the eyeball (not everted), the conjunctival wound is closed by three or four points of suture equally distributed between the corneal margin and the upper margin of the tarsus. This last suture passing through the loose conjunctiva of the cul-de-sac should be applied with especial care and should take a rather deep, wide hold in the membrane on each side of the wound; indeed, two sutures should be applied if good approximation can not be had with one, for one of the accidents described by foreign operators is prolapse of the fornix conjunctivæ. Care must be taken not to involve the engrafted tendon-slip in these conjunctival stitches; at the same time it must be neatly covered over."

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* New Orleans Med. and Surg. Journal, June, 1905.

The histories of the five cases, with some photographs, follow.

The operation has much to commend it, and it appears to be easier to perform than any other operation, except that of excising a fold of skin, which is notoriously inadequate.

Reports of Societies.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

The regular monthly meeting of the society was held in Booth Hall, Northwestern University Building, Tuesday evening, April 10, 1906, with the president, Dr. George F. Fiske, in the chair.

CARDIOTHYROID EXOPHTHALMUS.

Dr. G. F. Suker.—This man, negro, aged 35, has an excessive myopia and a very wide pupillary distance, therefore modifying markedly the Moebius sign, which, I think, is purely a mechanical one that has nothing to do with the disease itself. The von Graefe sign is not perfect; he has, however, a uniform lagging of the lid. Last October, when first seen, he complained of blurred vision in the right eye and failing vision in the left eye. On examination I found that he had rather a profuse intraocular hemorrhage, which was absorbed after a time, although the fundus of the left eye remained indistinct and clouded for some time.

His pulse was 140, and arterial tension 150, 160, 170 and at one time 200. The patient was put to bed and given thyroidectin, under which both his general condition and vision rapidly improved. His vision now is 20/50 and the fundus practically clear; his pulse is 110, and the vascular tension 120 to 130.

I begin to look on this hemorrhage as the result of high arterial tension. As the circulatory stagnation and peripheral resistance diminished, the fundi cleared up and he improved generally. Doctor collected fifty or sixty of these cases, in all of which the tension was above 130, the maximum being something over 200. All the patients had eye symptoms, and all had blurred vision. My patient, after he got out of bed, went back to work. His pulse and tension immediately went up and his vision began to drop. He was put to bed and again he immediately improved. Here, as in the case I referred to at the last meeting, the arterial tension gives the key to the situation. The retinal arteries are among the first to suffer from high tension, because they are end arteries.

A NEW ILLUMINATING APPARATUS.

Dr. H. V. Würdemann.—The transilluminator devised is a modification of the DeZeng ophthalmoscope. The entire instrument is not much larger than a fountain pen and may be handled in the same manner. The small electric globe in the ophthalmoscope is replaced by another of the same size, on the end of which there is a lens. The cone-shaped screw cap of the instrument contains a glass rod about three-fourths of an inch in length, which comes in contact with the end of the lens. Nearly all the light is thus focused in the glass rod and is brought out through it to the tip of the instrument, and from there a beam of light is projected through the eye or the structures to be illuminated.

The instrument is also efficient for illuminating the frontal and ethmoidal sinuses, the bridge of the nose and the maxillary sinuses. The cost of the instrument is about $5.00. It is of great service in differentiating intraocular tumor from pus in the cye and other conditions that may be mistaken for tumor.

HYPERTROPIA.

Dr. J. E. Colburn reported a case of hyperphoria of 9°, with limitation of upward motion of the fellow eye amounting to 10°; an advancement of the superior rectus of the first eye and two subsequent tenotomies of the corresponding muscle of the fellow eye gave only temporary relief. Exploration of the inferior rectus tendon of the second eye then revealed a broad adventitious band, 2/3 the size of the head of the tendon, limiting the motion of the eye upward. Eighteen months have elapsed since the excision of this band and orthophoria has been secured, along with the cessation of all the symptoms. Following the first operation, astigmatism of 5 D., axis 90, developed; this has gradually decreased since the last operation and is now only a little more than 3 D.

Discussion.—Dr. H. V. Würdemann: The experience is so unusual that I can scarcely discuss the operation or the condition of the muscles. It is certain that after an advancement we do find some astigmatism, but I have never known the condition to become permanent after an operation on the ocular muscles.

Dr. J. B. Loring: The tripometer should have been of value in determining the ability of the eye to rotate in this case; upward rotation would have been defective.

Dr. Colburn, closing the discussion: The astigmatism in this case increased each time I advanced the muscle, and up to about the same degree. It then slowly decreased, and increased again with the next operation and so on. After the last operation the astigmatism dropped 2.5 D. almost immediately. As to a permanent change in the astigmatism following operations on the muscles, I have frequently seen astigmatisms increased and decreased following operations for tropias and phorias, changing up to 1 D. or 1.5 D. I stated in my paper that the rotation upward was 10 degrees less than the rotation of the fellow eye; I have seen that occur in a weak or insufficient muscle.

THE DIPLOBACILLUS OF MORAX-AXENFELD.

Dr. Brown Pusey reported ten cases of infection of the eye with the diplobacillus of Morax-Axenfeld observed in Chicago during the last six months. Five of these cases were cases of chronic conjunctivitis in one of which there had been marginal ulcers of the cornea; three were cases of acute conjunctivitis; one was a severe ulcer of the cornea, and in one case there were no objective or subjective symptoms. These being the first cases recorded in Chicago of infection by this organism, Dr. Pusey reported the clinical histories of his cases in some detail and spoke of the characteristics of the organism and exhibited smears and cultures of it. From his experience he concludes that the Morax-Axenfeld bacillus is more widespread in this region than has been supposed.

Discussion.—Dr. N. M. Harris called attention to the tendency to specialization in bacteriology and quoted the dictum of Eyre that the diagnosis of inflammations of the eye should not rest so much upon clinical findings as upon the bacteriology of the exudates. For not only is the number of the organisms causing specific inflammations of the eye relatively small and their cultural reactions easily determined, but their morphologic differences well marked as well. The organism under discussion is best called, by Eyre, the *Bacillus lacunatus*, because of its peculiar habit of forming holes or lacunæ upon coagulated blood serum. It is very similar to, and perhaps the same organism, as that described by Pettit as growing on ordinary media and liquifying gelatin; indeed, Axenfeld and Eyre both have found that subcultures of the *B. lacunatus* may require these characteristics.

Dr. F. A. Phillips exhibited a probable case of this form of conjunctivitis. It has not yet responded to the cultural tests, but the microscope has demonstrated the presence of the bacillus on two occasions. When first seen there was a very marked erosion of the lids at the inner and outer canthus. The secretion was scanty and light in color. The patient has had the condition for over a year. Simple antiseptic treatment has been instituted until cultures of the organism shall have confirmed the clinical diagnosis. In the case of an infant seen some months ago a serious ophthalmia was suspected, but the microscope showed the presence of the diplobacillus, although no cultures were made. Active treatment was instituted with good results.

Dr. H. V. Würdemann: Dr. Pusey's paper points out the necessity of making office examinations of the secretions from the conjunctiva. The diagnosis is made easily and the treatment is outlined positively in each instance, whether the case is one of diplobacillary conjunctivitis or gonococcus or streptococcus conjunctivitis. If there is any doubt, the services of a bacteriologist can be secured or a blood serum tube may be inoculated and sent to the bacteriologist for diagnosis. The silver salts are specific for the gonococcus and the zinc compounds are specific for the Morax-Axenfeld diplobacillus. He cited the case of a boy who had been treated for an acute purulent conjunctivitis for over a week; he was convinced that gonorrheal infection was entirely out of the question, and a microscopic examination of the secretion at once demonstrated the presence of the diplobacillus. No other germs were found. Sulphate of zinc cured the case in three days. A few days later the father came with the same condition. The smears showed the diplobacillus, and sulphate of zinc produced prompt results.

Dr. W. E. Gamble cited the case of a boy, seen about a month ago, who had an acute conjunctivitis in the right eye, without much discharge. A smear was made and it showed the diplobacillus. Proper treatment was instituted, after having used argyrol without effect, and the eye got well. Another case of ulcer of the cornea was treated for months, and yet the eye is no better. Argyrol and boric-acid solution proved ineffective. An optical iridectomy was done, but the operation was not very successful. Smears were not made in this case except early in the disease. He has recently seen four cases of acute conjunctivitis in which the ocular conjunctival injection was quite marked. The microscope showed the diplobacillus, so that the picture need not necessarily be of the chronic type. The disease may be acute in character. However, that may be due to a mixed infection.

Dr. E. V. L. Brown said that it is possible to make a diagnosis of this condition in many cases from the clinical features alone. A mixed infection may, however, change the picture of a chronic disease into that of an acute infection. In the case cited by Dr. Phillips two other organisms were found, a staphylococcus and another diplococcus. He has observed in the laboratory that zinc sulphate is not a specific for this form of conjunctivitis, as has been claimed. Some patients have been under treatment for two or three months, although it may be possible that they are not observing the instructions given by the physician as closely as is the case with a private patient. But in all these cases the diplobacillus is still present in the secretions.

Dr. Pusey stated that in all his cases after using the zinc the results were apparent immediately; but all his patients were private patients, except two who were in a hospital, and even over these he had absolute control, and, as Dr. Brown stated, he thought that this might make some difference in the results obtained from treatment. As to the nomenclature of the bacillus, he protested at the bacteriologist taking away the little credit the ophthalmologist has earned in this connection, because Morax and Axenfeld are ophthalmologists, and, therefore, it is well to have their names connected with the organism.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of March 17, 1906.

Dr. Wm. C. Bane, of Denver, presiding.

OPAQUE NERVE FIBERS.

Dr. D. A. Strickler presented a case in which a ring of opaque nerve fibers extended around three-fourths of the circumference of the disc, and not over one-third disc diameter from the nerve head, and which also showed the inferior temporal vein to be unusually long and large, and unaccompanied by the artery. An opinion was desired as to whether or not the vein was pathologic.

Discussion.—Dr. Jackson said he had never seen a case of opaque nerve fibers surrounding three-fourths of the disc in which they extended so short a distance beyond it. He believed the vein was normal, and called attention to the large field it supplied. Dr. Black thought the vein looked larger than it was from the fact of its being alone, and Dr. Libby noted its lack of branches as a possible explanation of its increased diameter.

RETINAL EMBOLISM.

Dr. Bane showed a man, aged 54, who had been under treatment by the Rogers 500 c.-p. lamp for 2½ months for blindness following retinal embolism of the right eye. There had been premonitory symptoms of occasional darkness before the right eye for the preceding six months. Beginning January 4, two treatments a day with the lamp, for 20 days, had been given under the advice of Dr. John Harper, of Chicago. After the second treatment the patient had light perception. Two and one-half months later there was about one-third of the normal field, to the temporal side, vision for green,

R. V. = 1/60, L. V. = 6/6. The right disc showed the atrophy of syphilis contracted 30 years previously. Dr. Bane said he should continue the treatment daily.

RETINITIS PIGMENTOSA.

Dr. Melville Black presented the case of a young man, aged 22, with typical retinitis pigmentosa, upon whom he had been using the high frequency current for 43 days for five minutes each day. When treatment was begun, his vision was 5/12 in each eye. It had risen to 5/9 in each eye. There had been a very slight increase in the size of his visual fields, as evidenced by the charts presented. The patient expressed himself as pleased with the improvement of his vision after dark. The treatment will be continued six weeks longer, when the patient will be again brought before the society.

Discussion.—Dr. Jackson had seen a case of retinitis pigmentosa 25 years ago, probably due to hereditary syphilis, but not to consanguinity, in which the fields were very much narrowed. When last seen, three or four years ago, this man could still walk the streets unaided.

In connection with the high frequency current, Dr. Coover reported two cases of conical cornea thus treated. In one the vision rose from 10 inches to 3 feet for the 20/200 type, and in the other from 5/200 to 20/200 in three weeks, and street cars that had seemed to run above the street appeared in their proper position. Drs. Libby and Coover called attention to the macular appearances of beginning albuminuric retinitis in this case and advised careful urinalyses.

Drs. Black, Strickler and Bane reported, each, a case of blindness due to severe traumatism about the affected eye, in which the ophthalmoscopic findings soon after the injury were negative. In two cases, however, after six months to a year, optic atrophy was observed, the third case having been injured within a week. Fracture at the apex of the orbit was thought to have been the cause of the loss of vision.

Dr. F. A. Davis reported a case of sympathetic ophthalmia which had been treated in 1892 by mercury, the exciting eye not having been removed. The sympathizing eye showed vision of 9/10 +. When recently observed there was a deposit on the anterior capsule and the iris was slightly discolored.

Dr. A. C. H. Friedmann reported headache, slightly dimmed vision and normal fundus in a man, aged 25. For two days there had been no opthalmoscopic changes noted, but on the third day optic neuritis supervened, and death from meningitis occurred on the seventh day.

Dr. E. W. Stevens reported a case of steel flying from a hammer into the vitreous. Twenty-four hours later the pupil was small, vision dim, the cut through the cornea and anterior and posterior capsules showed opacity, but the lens and vitreous were clear so that the steel could be clearly seen in the vitreous in an upright position. It was readily removed with a Johnson's magnet. Later uveitis developed. Under large doses of sodium salicylate the condition became worse, but slowly quieted down under mercury and leeching. After three weeks the lens still remained clear.

A second case of penetrating foreign body in the eye was reported by Dr. Stevens, but was not seen by him for six weeks, as the family physician unfortunately told the patient that nothing had entered the eye and that the blood in the anterior chamber was caused by impact. V. = ½ (about) six weeks after the accident, when a scale (presumably paint from the hatchet used) could be seen in the vitreous, and it was judged that a chip of iron from the hatchet had carried along the scale of paint, leaving it in the vitreous, and had itself passed through the eye into the orbit. Examination of the hatchet showed a coating of white paint.

Dr. Edward Jackson reported a case of iridocyclitis in a woman athlete, caused five months before while doing high diving. Impact with the water caused ecchymosis below the left infra-orbital ridge, a scar appearing later, and the pupil was immediately enlarged, but became normal in three weeks. The eye was never noticeably inflamed. The other eye was not affected. When seen by Dr. Jackson, the vision of the left eye was reduced to moving objects in the temporal field, the color of the iris was slightly different from its fellow, and the iris was bound down by an annular synechia.

Dr. Jackson also spoke of a case of iridocyclitis he once saw ten days after injury from the impact of milk from the bursting bowl of a separator revolving several thousand times a minute. The only traumatism was from the liquid.

Dr. Stevens urged careful and painstaking perimetry and advocated a black background 2 meters square and 2 meters distant, with a 2 meter angle test object, used in a slightly darkened room. To this Dr. Friedmann added the black gowns and gloves used in Germany while taking the field of vision.

A discussion was held on the subject of patients pulling out their eye lashes and eye brows, sometimes for suppuration about the roots, and also because they claimed that the lids then felt better. Hysteria was the cause assigned in the latter instance.

George F. Libby, *Secretary.*

BERLIN OPHTHALMOLOGICAL SOCIETY.

Meeting Feb. 15, 1906.

President, Professor von Michel, in the Chair.

[Reported by Dr. E. H. Oppenheimer, Berlin.]

Dr. Levisohn showed a case of coloboma of the optic disc. The etiology was said by him to be the same as of the other five cases reported in literature.

Dr. May showed a case of pearl-cyst of the iris. A man, 43 years old, had a luxation of the lens, iridodialysis and cataract after contusion sixteen years ago. Near the margin of the iris there was a light brown-colored tumor which had grown for the last eight years. With Wintersteiner he believes that the tumor originated from the epithelium of the capsule. Professor von Michel said that the origin of the tumor in this case is not certain, although probably it arose from the capsule, and showed a specimen of a similar case.

Dr. Adam reported examinations he had made on 300 cases of squint to find out the relations between normal and abnormal localization of the retinal image in squint. Of these 300 cases only 200 could be relied on for the purposes of the investigation. The angle was tested by using the apparatus of Tschermak (an electric-light streak) and comparing the after-images of both eyes. If the angle of squint was equal to the above angle of abnormal localization, Dr. Adam called this a harmonious relation; if smaller (i. e., after operations), a disharmonious one.

All cases were examined as to refraction, vision, sense of perspective fusion and binocular vision. He preferred using the needle-stereoscope of Tschermak to Hering's drop-test. All cases of squint he divided into 3 classes: (1) Those with slight vision (counting of fingers at 3 feet). (2) Those with ½ vision, and (3) those possessing normal vision. Nearly *all* cases of the second class possess abnormal localization; the others not, with the exception of cases of the first class with eccentric localization. Strange to say, abnormal localization could be subdued by simply covering the eye a moment or by closing it. Not a single case of the monocular diplopia reported by Bielschowsky was detected. Fusion was never present when abnormal localization was found. After reporting on the origin of abnormal localization (in cases of paralytic squint it is always missing, because the angle of squint changes), the effect of squint operations on it and the relations of the binocular vision and the angle of squint to it, he spoke on the after-treatment of squint as it is practiced in the clinic of Professor von

Michel. The children practice their amblyopic eye by reading small print and acquire invariably vision of one-half (!); then follow stereoscopic exercises with the pictures of Hegg.

[It seemed very strange to me that Dr. Adam never mentioned Worth at all, although a number of his statements are to be found or contradicted in Worth's book; it is not *more* than a year since I translated Worth's book into German. It seems, though, that with two exceptions (Professor Frolich and myself) no one practices his methods in Berlin.]

Dr. Loeser reported two cases of *paresis of external orbital muscles* (abducens and sup. oblique) after spinal anesthesia, one following the use of ovocain (a new substitute of cocain) and another after the employment of stovain. The pareses were noticed 5 and 8 days after the patients (vigorous men, 35 and 45 years old) had been operated on. Dr. Loeser considers it a *toxic* paresis and believes that in future such paresis will not be rare.

Discussion.—Dr. Schoeler says that he had also witnessed one case after stovain. Dr. Levisohn spoke on the probable path of the toxic agents and considers the paresis a basal one. Dr. Salamonsohn, Dr. Adam and Professor v. Michel are doubtful whether the muscle trouble was due to the spinal injections at all, because they began so late and only these muscles, one at a time, were affected. Dr. Feilchenfeld, who had treated one of the cases, was sure that they were due to the anesthesia, also Professor Hirschberg, especially because they disappeared so rapidly (after a week or two). [I rather incline to the opinion of Dr. Loeser, although a hemorrhage or thrombosis *may* have been the cause of the paresis.]

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting March 20, 1906, Dr. E. G. de Schweinitz, chairman, presiding.

Dr. S. D. Risley showed for Dr. Harlan a case of embolism of the central artery of the retina. The patient was a negro, 26 years of age, and the eye had become suddenly blind while he was reading the newspaper, twenty hours before the first examination. At this time the pupil was slightly dilated and there was no light perception. The whole fundus was of a bluish-gray color from retinal edema and the typical "cherry-red" spot was at the macula. The retinal arteries were invisible on the disc and could scarcely be traced beyond it. The veins were about normal in size and of an arterial red color and the current was beaded but without apparent movement. The patient had had "spasms" when a child, which disappeared until five years ago, since which time he had been subject to attacks of epileptic convulsions three or four times a month. Heart beats were rather weak, but there were no signs of valvular disease. Two days later the red spot was replaced by one of dark gray, and there was a striated hemorrhage at the temporal margin of the disk.

Dr. Casey Wood, of Chicago, read by invitation a paper on "Some Forms of Hereditary Cataract." He believes that if by the term "cataract" one means any opacity of the crystalline lens or its capsules it is not difficult to make out a case for the hereditary character of senile cataract, especially as changes in the transparency of the lens are rather the rule than the exception in persons above the age of 65. Other forms of cataract occasionally occur in a family series that make it fairly certain that hereditary influence enters as a probable causative factor. He gave the histories of three series of familial cataract. The first was in a family, a member of which was sent to the author by Dr. T. B. Charlton, of Clinton, Ohio. In this instance a woman 33 years of age was blind with lamellar cataract. Her great-grandmother had and her mother at the present time has cataract and, most remarkable of all, five brothers and four sisters of her own "childships" of twelve are the subjects of juvenile cataract. Altogether in this series of thirty-one individuals representing four generations eleven members have cataract, all of them of the presenile variety.

The second series is that of the Hussa family. In three generations of about forty-six individuals twelve and perhaps fourteen had and have cataract, all of the juvenile type.

For various reasons the most instructive of all of these familial series is that of the Ira Smith family. Although the number of cataractous patients in this family is not large, there are some peculiarities about the lenticular disease worth noting. In the first instance the opacities did not develop until comparatively late in life, although they were noticed in both eyes at or about puberty. In five or six instances the patients were operated on after they had reached 60 years of age. With one exception these operations were failures, and with this exception, also, the blindness set in from glaucoma without apparent infection and after the primary wound had healed. Three cataractous eyes were operated upon. Nevertheless, in these three instances the patients became totally blind from secondary glaucoma. Another noteworthy fact in this family is that in three patients there was a temporary return of vision, i. e., the cataractous lens regained sufficient transparency to enable the patient, previously blind, to go about without difficulty and to see fairly well. The writer was able to remove a cataract from one of these patients after failure to do an extraction on the other eye in the same individual. The operation upon the lost eye went through the same course that other eyes in the family previously treated pursued. Owing to these peculiarities the extracted lenses were sent to Dr. Adolf Alt, of St. Louis, who reported that the lenses contained a number of crystaloid nests, probably lime deposits, prismatic in form, base out, apex toward the center of the apparently spherical cavity. He regards this condition as rare, since he has seen but one other specimen which showed similar crystalline formations in the lens. The writer believes that the clearing up of the cataract in the three members of the family—a transparency that almost always preceded the glaucoma from which the patients became ultimately blind—occurred from the absorption of exudates between the nests of lime salts, due to active changes in (with swelling of) the lenticular substance. In five of the six eyes that exhibited this "clearing" of the lens the patients were able to read, with a magnifying glass, coarse print for a time and to make out medium-sized objects about the house.

So far as could be determined, in none of the three series was there a common incident, apart from the occurrence of cataract; no consanguinity of parentage, no congenital defects, no tubercular, syphilitic or scrofulous habit. None of these cases examined had glycosuria. Those that reached old age seemed to be as well as people of their time of life generally are.

Commenting on Nettleship's monograph, the writer drew attention to the fact that few American authors had been referred to in his bibliography, although Howard Hansell, Millikin, A. D. Williams, A. R. Baker, J. L. Dickey and others have contributed to the subject. Few authors have discussed the actual part played by hereditary predisposition in familial cataract, and it must be admitted that therein lies the chief difficulty. What are the principal factors? Do they consist in anomalous development of the nutritional apparatus of the lens system, or are they systemic peculiarities common to members of the afflicted childships? Again, are they organic defects in the lens structure (as is probable in the case of the cataract examined by Alt from the Ira Smith family) and handed down from one generation to another?

Precise answers to these questions undoubtedly call for further examination, not only of the ocular structure, but of the subjects exhibiting hereditary cataract.

Dr. Risley felt much indebted to Dr. Wood for his interesting and instructive paper, but was much impressed by the fatality following efforts of extraction. He regretted that Dr. Wood had not read all the details set forth in his paper as to the method of extraction pursued in the one successful case, and inquired whether the lens had been extracted in its capsule.

This method, he thought, commended itself if, as Dr. Wood believed, the bad results in the other cases were due to the retained portions of the lens adherent to the capsule.

Dr. Risley reported briefly seven members of one family, Pennsylvania Germans, who had been under his care at the Wills Eye Hospital during the past fifteen years with cataract. Six of them had been operated upon successfully, five by discission, one by extraction. One case was lost by purulent panophthalmitis following the third discission operation. They were all feeble-minded.

Dr. Ziegler reported a family in which cataracts had appeared in five members. In one case there was a zonular cataract on one side, which ripened and was extracted, and a fluffy opaque capsule in the other, which he had excised. He had also seen a second series in a physician's family, the father and two of his children having zonular cataracts.

Dr. J. L. Dickey, of Wheeling, W. Va., spoke of the five series of cases which he had already reported. In one series every female member of the family had developed cataract after the age of 30 years. He had operated on a case of traumatic cataract in a man of 21 years and had found the lens calcareous throughout.

Dr. Pyle had seen two brothers of a Pennsylvania German family who had dislocated, cataractous lenses, with colobomata, both of whose parents had been operated on for cataracts.

Dr. Wood said in answer to Dr. Risley's question that in the first case he had made an attempt to extract in the capsule, but it was unsuccessful. In the second case he had used irrigation with salt solution. All of his cases were in good physical health and showed no other congenital defect.

Dr. W. Zentmayer exhibited a case of retinitis proliferans. The patient, a man 27 years of age, came to the hospital for the removal of a foreign body from the cornea. Examination of the fundus showed an extensive bluish-white membrane with new-formed blood vessels, extending from the disk almost to the macula in advance of the retina. Vision was unimpaired. The history was negative. The patient never had had any disturbance of vision. While in this case there were no evidences of previous hemorrhages, in a case seen by Dr. Zentmayer several years ago the condition had been preceded by recurring hemorrhages. Dr. Zentmayer referred to the recent anatomic report of a case of retinitis proliferans by Cirincione. In the papilla there existed a new-formed tissue of slender fibrillæ, collections of round cells and large bundles of fibrous tissue continuous with the fibrous coat of the papillary vessels. The retina was greatly thickened by a superficial layer of fibrous tissue parallel to the retina. Toward the papilla this layer blended with the retina, but at the periphery they were separated. Beneath this layer there was a membrane made up of every form of cellular element with a fibrous layer in which there were blood vessels showing arteritis obliterans. In the retina the most marked changes were in the fiber layer and in the internal granular layer, these being replaced by new-formed tissue. He considers the disease a local one, due, probably, to an irritant condition of the vitreous acting principally on the adventitia of the vessels of the papilla.

Dr. Zentmayer presented a patient with vernal conjunctivitis (periodic hyperplasia of the conjunctiva), who had been treated with the Roentgen rays by Dr. Sweet. The case, which had been an unusually pronounced one (illustrated in the textbook of Hansell and Sweet), shows only a small localized mound of hyperplastic conjunctiva at the limbus. During the past summer the eyes appeared perfectly normal. In a second case the treatment had not been so faithfully pursued, but the relief had been very marked.

The cases were not presented as "cures," but to show the beneficial effects of the treatment.

Dr. Wood spoke of Dr. Allport's patient, who had been cured apparently for two years. He had a patient of his own who had been free from the condition for one year, since treatment with *x*-rays, but he thought care should be taken not to claim a cure until there had been no return for at least two years.

Dr. de Schweinitz had had only one case treated by this method, but the number of applications had been insufficient. He was skeptical with regard to the ultimate cure of these cases by the *x*-ray, by radium, etc. Most of the results have been only temporary, but the method was worthy of further trial.

Dr. Carpenter agreed with Dr. Wood as to the necessity of waiting more than one year before claiming a cure. Many patients, like hay-fever patients, were occasionally entirely free from their discomfort throughout an entire season. He had seen a patient who had had severe attacks for six years, and under treatment with tannin and glycerin had been entirely free last summer. He did not think it justifiable, however, to consider the case cured by this treatment.

Concerning macular fatigue and central scotomas in certain psychoses. Dr. de Schweinitz, after briefly describing the visual field phenomena which pertain particularly to the periphery of the visual field in the various types of neurasthenia and hysteria, discussed certain symptoms which interpret macular fatigue, namely, small central relative color scotomas or blurs, paracentral scotomas, central scotomas simulating those produced by toxic amblyopia, and large central exhaustion scotomas. The method of detecting the small relative color scotomas with millimeter test objects was described, and the importance of this condition in relation to proper refractive work was fully developed. The paracentral scotomas which were figured were believed to represent fragmentary ring scotomas, which in their turn might represent a certain stage of the so-called oscillating visual field. The difficulty which the large central exhaustion scotomas and central scotomas simulating toxic amblyopia present from the standpoint of diagnosis was fully discussed, particularly the differential diagnosis between these functional conditions and various types of retrobulbar neuritis.

Dr. Hansell spoke of the possibility of making a wrong diagnosis in cases of psychical central scotoma, unless the macular regions were carefully searched for fine lesions and toxic amblyopias were excluded. Myopes also exhibit rapid exhaustion of the retina, which renders accurate measurement of the visual field very difficult.

Dr. Risley said it was in precisely these cases that it was difficult to secure normal vision when testing the refractive error. Letters often disappeared or were suddenly displaced. He spoke of a typical case of neurasthenia in which he had been unable to secure full vision until after a week's rest at the seashore.

EDWARD A. SHUMWAY, M.D.,
Clerk of Section.

Meeting February 20, 1906.

Dr. G. E. de Schweinitz, chairman, presiding.

Dr. Wm. Campbell Posey presented an Italian child, aged 5 years, upon which he had done a Kroenlein operation for the removal of a dermoid cyst of the orbit. Similar growths had been removed from the orbit when the child was aged 2 and 4 years respectively, but on account of the extension of the tumor far into the posterior part of the orbit, its complete removal was impossible and the growth had recurred. The tumor, which was removed by Kroenlein's procedure, was situated at the upper and outer angle of the orbit, just below the orbital rim.

No difficulty was encountered with the rapid performance of the various steps of the operation, but after the wedge of bone had been loosened, it was found impossible to keep it in position and it was temporarily removed from the wound. The cyst was found directly underneath the orbital ridge.

Healing was complicated by infection, the wound sloughing. The triangular segment of the bone which was replaced before the wound was closed evidently necrosed, as a small sinus remains, through which several small sequestra of bone have been extruded. Notwithstanding extensive exploration of the orbital contents and free dissection of the tissues, the reaction following the operation was slight, and the function of the extraocular muscles was not interfered with.

Dr. Posey presented a second case of dermoid cyst which occurred in a boy of 6 years old. The tumor in this case presented all the signs of an empyema of the anterior ethmoidal cells, as it appeared as a firm, circumscribed, non-movable tumor, in the upper, inner angle of the orbit, directly over the region of these cells. The true nature of the case was only revealed at the time of operation. Rapid and uncomplicated healing followed the complete extirpation of the growth.

Dr. Posey exhibited a photograph taken from a case of cerebrospinal meningitis which afterward proved fatal, in which a marked dilatation of the palpebral fissure upon both sides and a wide dilatation of the pupils could be clearly demonstrated. The writer thought these signs to be unusual and attributed them to a stimulation of the cervical sympathetic. He pointed out that Randolph, who had examined 35 cases of cerebrospinal meningitis, had made no mention of these symptoms, though he had frequently found conjunctivitis and changes in the pupils, and a majority showed a tendency to venous engorgement of the retina and optic neuritis.

Dr. Posey further reported two cases of orbital abscess secondary to necrosis of the superior maxillary bone, occurring in infants. In the first case, a baby 10 weeks old, a swelling appeared upon the side of the face when this child was three weeks old, which caused the eyelids to close. In a few days pus discharged from two openings on the alveolar margin of the gum of the same side, and from several openings along the lower rim of the orbit; some weeks later several small sequestra of bone were extruded through these sinuses. Several weeks after this, it was noted that the veins over the scalp, particularly on the same side, became very prominent, and a condition of acute hydrocephalus developed, the fontanels opening. Mercurial inunctions were prescribed, as it was deemed that the condition had been caused by syphilis, and under this treatment the size of the head decreased, but the general condition of the child became worse, and death ensued in a few weeks.

The diagnosis of syphilis in this latter case was further substantiated by the birth some time later of an 8 months' fetus which showed marked signs of specific lesions.

The second case occurred in a child 6 months old. Both parents were healthy, and there was no history which pointed to a specific origin of the affection. Both eyes had been inflamed after birth, the inflammation persisting for six weeks and being accompanied by a discharge from the nose. When the child was about 3 months old, an abscess formed in the superior maxillary bone, which required incision along the alveolar processes, and the floor of the orbit. Later, the pus burrowed into the post-cervical region, requiring incision in that locality. Discharge of pus from the orbit persisting, a curvilinear incision was made about 2 cm. long at the lower outer angle of the orbit, the sinuses being split up and the bone laid bare. Extensive necrosis of the rim and floor of the orbit and of the anterior surface of the superior maxillary being encountered, the dead bone was thoroughly removed by the curette. Free drainage was obtained by inserting a tube into the bottom of the orbital wound and bringing it out through the cheek below. The progress of the case was favorable, but an acute bronchitis prevented its exhibition before the Section.

Dr. Posey also exhibited a photograph of a boy who had been operated upon for ethmoiditis in whom repeated incision had been made into the orbit by a colleague, in the belief that the abscess was one of idiopathic disease of the orbit.

Dr. S. D. Risley showed a case of large cavernous angioma of the lower lid in a child 3 months old. The method of electrolysis was first employed, and subsequently Erichsen's ligature was applied. The mass sloughed off without hemorrhage, healing was rapid and the final result was very good. Dr. Risley thought the procedure adopted was the safest in so young a child.

Dr. F. C. Parker (by invitation) reported a case of bilateral gumma of the orbit in a girl 8 years of age. The firm, immovable mass on each side extended the whole width of the orbital margin. No specific history was obtainable, but microscopic examination confirmed the diagnosis. The growths gradually disappeared in 15 months under the combined use of anti-syphilitic and *x*-ray treatment.

Dr. Posey referred to a case of nevoid growth of the lid, which was made to disappear by Wyeth's method of injection with hot water.

Dr. Harlan showed a case of very large nevus of the upper lid and forehead, in a child of 2½ months. It was treated by Erichsen's ligature, but recurred, and the patient subsequently fell into the hands of a general surgeon. Repeated efforts were made to secure the vessels by subcutaneous ligature, but it was found necessary to excise one portion, while the remainder was treated by injections of boiling water, and by the actual cautery. The growth was finally removed, but the eyeball was exposed by extensive cicatrices of the lid.

Dr. de Schweinitz said that the admirable result in Dr. Risley's case justified the procedure, although he thought that in a certain number of these cases, as Knapp had pointed out long ago, and as seemed to be the opinion of general surgeons, the best results were obtained by excision and dissection in the ordinary manner, an operation, moreover, which was often unattended with any severe hemorrhage, owing to a membrane-like encapsulation of the cavernous tissue. He realized, however, that many cases could not be reached satisfactorily with this surgical procedure. Electrolysis, ligation, sometimes even the actual cautery, were required, according to the conditions which were present.

Dr. B. Alex. Randall presented a drawing of an exquisite case of dendritic keratitis in a man of 52, who had come with a typical episcleritis of the left eye and a distinct rheumatic history clearing promptly under aspirin. This was followed by corneal involvement three days later, the lesion resembling a delicate spray of seaweed upon the corneal surface. The termination of each filament broadened into a vesicle and then smoothed down under treatment with dionin and internal administration of quinin; but faint superficial opacity remains, which has not yet cleared under Pagenstecher's ointment. There was a former malarial history but no recent attacks.

Dr. Randall also presented a patient with a double choroidal coloboma drawn 20 years ago for Dr. Norris at the University of Pennsylvania, now having retinal hemorrhages, probably of nasal causation. The large rounded colobomata are separated by portions of normal or slightly disturbed choroid directly above from the disks and have changed little, if at all, in twenty years. Striated hemorrhages have appeared from time to time at the disk-margins without macular lesions or choroid involvement. The kidneys seem normal and the lesions have disappeared promptly under alterative measures, without splotches or other vestiges remaining. The ethmoids are discharging muco-pus, but improving under conservative treatment, and no other cause has been discernible for the retinal involvement. He also presented a sketch of a colobomatous anomaly of the iris in a man of 30 years, in which no translucency was present in the lower part of the iris; but its entire breadth was traversed by a prominent raphe with a slight nick of the pulpillary margin. The tissue on the nasal side seemed to override the temporal almost like the edge of a buttoned garment—an anomaly which was in his experience unique.

Drs. G. E. de Schweinitz and E. A. Shumway exhibited a patient with optic nerve atrophy resulting from the toxic action of methyl-alcohol with the following history:

In December, 1894, the patient during the course of two days drank three-quarters of a pint of methyl-alcohol diluted with water. At the end of this period he was seized with vomiting and nausea, followed by rapid blindness, which was complete for 48 hours. Then there was a rapid return of vision, and the patient was enabled to pursue his vocation of house-painting, and it is said could read. This period of restored vision lasted for nearly 4 months, when there was gradual failure, so that now the vision is 6/45 in the right eye and 6/30 in the left. Both optic nerves are greenish-white in color, and the vessels of both symptoms are shrunken. The case is interesting on account of the long period of restored vision, namely, 4 months, and the apparent cessation of the atrophic process, which has lasted now more than a year, with a vision which enables the patient to get about, but not to perform any accurate work.

Because of the serious prognostic import of the bilateral metastatic ophthalmitis in so far as life is concerned, especially when the condition has arisen in connection with puerperal pyemia, Dr. G. E. de Schweinitz reported an instance of this character, the patient being a primipara aged 28, and the infection having appeared on the fifth day after the birth of her child, although she did not come under ophthalmic care until four days later, when both eyes showed extensive annular abscess of the cornea, followed later by elaborate ophthalmitis requiring for the relief of pain evisceration of one eyeball. The patient was highly septic when admitted; the secretion from the conjunctiva and from the centers of the eyeballs contained in great abundance streptococci; abscesses which formed in the perineum and over the tendon of the left elbow-joint contained the same micro-organisms, and there was also a mucopurulent discharge from the uterus, the cavity of which contained some grayish-white exudate. There was no endocarditis.

The blood cultures were sterile. The patient gradually recovered, although for days the prognosis was most gloomy, owing to the sepsis and the persistent vomiting.

Dr. Hansell referred to two children, who had recovered from cerebrospinal meningitis. One patient had lost both eyes, and the other one eye from metastatic ophthalmitis.

Dr. Harlan said that he had seen several similar cases during an epidemic of cerebrospinal meningitis. Dr. Chance had examined 70 cases, but had seen no metastatic involvement of the eye. Dr. Ziegler thought the sterility of the blood in Dr. de Schweinitz's case might be due to a possible carrying of the infectious products by the lymphatic system. Dr. de Schweinitz concluded that it might be accounted for by the fact that the blood examination had not been made until the eleventh day, while the ocular infection occurred on the fifth day, and the organisms might have disappeared in the interval.

Dr. W. Zentmayer presented (1) a patient, a female, 48 years of age, with the subjective symptoms of pigmentary degeneration of the retina. In the right eye there were but two or three fine specks of free pigment. In the left there was somewhat more pigment. In both eyes the epithelium appeared unusually white with numerous brilliant points and beginning hyaline degeneration especially marked about the papilla. The arteries were much contracted; the veins but little. The nerves were characteristic. In each eye V = 6/VIIpt. The field of O. D. showed more contraction for form than did that of O. S., but in the latter the color field was the more restricted (down to within 10 degress of fixation) and there was a horseshoe scotoma extending from the vertical meridian above to 45 degrees below the horizontal meridian and from 10 to 20 degrees in width. Night blindness had existed for 10 years. Neither consanguinity nor heredity played a part.

Dr. Zentmayer presented (2) a second case in a boy practically unable to navigate in the dark. There was a history of a fall with compression symptoms and trephining of the skull. The nerves were not characteristic, but had more the appearance of consecutive atrophy. The peripheral pigmentation was quite marked. The fields were concentrically contracted. V. = 5/20.

Dr. Zentmayer exhibited (3) a case of retained hyaloid artery, together with a circumscribed defect in the choroid in the upper part of the fundus. The retinal vessels projected beyond the plane of the retina and from their surface there sprang a connective tissue cone continued as an attentuated cord terminating at the posterior capsule in a disk surrounded by a zone of delicate, rucked tissue. The choroidal defect was about the size of the disk. The superior vein skirted its edge.

Dr. Pyle referred to two cases of retinitis pigmentosa without pigment in brother and sister. The periphery of the eye-grounds showed some stippling. There was a history of night-blindness in a paternal grandfather.

Dr. Howard F. Hansell reported a case of bilateral removal of the lens in high myopia, with the subsequent use of dionin. The patient, a boy of 19, had myopia in the right eye of 21 diopters and in the left eye of 23. In addition to the usual posterior staphyloma there was foveal degeneration of the right eye from choroidal atrophy and extravasations of blood. In the left, during the year he was under observation, he had had no less than 15 small hemorrhages in the fovea. As a result of this pathologic process vision was rapidly declining and he had been obliged to give up his occupation. The right lens was superficially needled and in 7 days the lens mass removed. After complete recovery the left eye was similarly treated. The pupil of each eye is clear and unobstructed. V. in R. + 1 c. ax. 135° = 20/70; in L. + 1 ⊃ + 3 c. ax. 135° = 20/50. The patient has had no recurrence of hemorrhage in either eye since the operations. It is difficult to draw conclusions from the literature as to conditions that warrant the removal of the lens for the cure of high myopia. High and progressive myopia is almost without exception not only associated with, but the cause of, extensive posterior staphyloma, fundus changes, foveal atrophy, choroidal degeneration, and hemorrhage tendency in the fovea, and these same are named as the contraindications. Dr. Hansell believes that myopia of 15 D. or more, known to be progressive in spite of careful refraction, independent of the common changes at the fundus, is suitable for operation, because (1) progressive myopia invariably leads to atrophy of the choroid and degeneration of the retina at the posterior pole; (2) the effort to see clearly by reason of the diminished images seen through strong glasses and the necessity for strong light induces severe and constant strain that in itself tends to increase the myopia; (3) the highly myopic individual is debarred from many occupations; (4) removal of the lens, by curing myopia, checks the further degeneration of the fundus. The absorption of lens remnants and tags of opaque capsule was materially aided by the use of dionin, commencing with 2 per cent., increasing to 5 per cent., and finally to 10 per cent.

Dr. Risley recalled the case he presented to the Section last year, in which the myopia was 34 D. and the extraction of the lens had resulted in V. = 20/70 +, with — 8.00 D. $\overset{\frown}{\smile}$ — 2.00 c. ax. 180°. In that case there was no recent inflammatory changes and no evidence of progressive myopia. In January of the present year he had adopted the same procedure on the fellow-eye, viz., a cautious cutting of the anterior capsule. This was followed by no unusual reaction or swelling of the lens, but on the second day the man lost all preception of light. On the fifth day there was more pain and increase of tension. The lens was removed and the eye progressed without further incident, but without recovering light preception. The blindness, he thought, was due to total separation of the retina. Dr. Risley said he had always opposed extraction of the lens in malignant myopia and had consented to the operation in this case because of the long absence of any inflammatory change in the choroid, and the helpless condition of the young man with M = 34 D. which dated back to early childhood.

EDWARD A. SHUMWAY, M.D., *Clerk of Section.*

Notes and News.

THE CONNECTION OF ABNORMAL EYE MANIFESTATIONS WITH SYMPTOMS IN THE VAGUS REGION.—Dr. Rosenbach (*Munch. Med. Wochft.*, No. 13, 1905), distinguishes between two groups of cases, in one of which the eye disease is primary and followed by the other disturbances; the ocular affection being only one of the manifestations of the general condition in the second group. Therapeutic measures must be based upon the proper classification. Scintillating scotomata and migraine are briefly mentioned as standing in connection with the vagus symptoms and eye symptoms; the author expressing the idea of eventual painful spots in the nose occurring in the above forms of disease, timely treatment of which might serve as a prophylactic measure.

GLASS BALLS FOR TREATMENT OF TRACHOMA AND PANNUS.—Likiernik writes from Lodz to the *Med. Klinik* for November 5 that he has obtained fine results in 310 cases of more or less chronic granular eye affections by local massage with a glass ball mounted on a long handle. The diameter of the ball is from 7 to 12 mm., and it is readily introduced under the upper or lower lid. After a few sittings the patient learns to use the ball himself. Diffuse granulations of years' standing yield rapidly to the daily use of the ball for merely thirty to sixty seconds, supplemented by the action of some antiseptic solution in which the ball is dipped before using. Pannus, if not too old, subsides quickly. Complications, such as infiltration of the cornea or indolent ulcers, do not contraindicate the ball treatment. Sometimes before using the ball he moistens it with a weak mercurial or 3 per cent. boric-acid solution.—*Jour. A. M. A.*

HEREDITY OF ALBINISM IN MAN.—An investigation as to the heredity of albinism in man is being carried out by Professor Karl Pearson, F.R.S., of University College, London, England, with the co-operation of Mr. E. Nettleship (Shottermill, Surrey, England), and Dr. E. Stainer (physician to the skin department, St. Thomas' Hospital), 60 Wimpole street, W. London, England, and that cases bearing on the subject, *either positively or negatively,* will be very thankfully received by any of those gentlemen. The investigators desire to collect a large series of examples of albinism—complete or incomplete, general or partial—in which the family history of the albino patient can be traced for one, two, three or more generations. The sex and prevalent color of eyes and hair in as many of the patient's relations and ancestors as possible should also be noted whether any of them were albinotic or not; also all instances of consanguineous marriages. Cases of albinism of the eyes in persons with congenitally pied skins (most easily recognized among dark races) will also be very valuable even without family history, acquired leukoderma being, of course, excluded.

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A NEW EYE-SYMPTOM IN GRAVES' DISEASE.*

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The term "new" has perhaps no more place in medicine than "never" and "always," but among the eye-symptoms of Graves' or Basedow's disease, there is one which, so far as I know, has not been written about. I refer to the difficulty encountered in trying to evert the upper lids of some of these patients. The first patient in whom I noticed this peculiarity was one of the rare subjects of one-sided exophthalmos with Graves' disease. She was an apparently otherwise healthy woman of twenty-nine years who consulted me in October, 1889, because for three months it has been noticed that the right eye seemed a little larger than the left and did not close during sleep, and "looked crooked" when turned down. Since then it has not changed perceptibly. No asthenopia nor other inconvenience. S. P. No goitre, tremor, nor heart symptoms. V. = 20/20 o.ut. L. E. normal. R. E. palpebral fissure perceptibly larger than left; on looking down much more sclerotic visible right than left, and on closing eyes gently the right fissure stays open two or three mm. and a distinct linear, horizontal puckering of skin of upper lid above inner half of tarsus can be seen, as if from adhesion back of lid. *The upper lid can be turned only with great difficulty and then at the expense of so great a strain on the tarsal conjunctiva that latter is entirely blanched in the center by the pressure.* In other words the retrotarsal fold above, especially at the inner side, seems to be not simply obliterated, but pulled back so firmly as to make it almost impossible to evert the lid. Conjunctiva otherwise normal; no trace nor history of trachoma, past or present. Owing to the apparent lack of other symptoms and my ignorance of the fact that the exophthalmos of Graves' disease could be one-sided, I made no diagnosis, and thought that she might have some benign orbital growth. I had her under observation for several weeks, but then lost sight of her until May, 1895, when she reappeared and informed me that without any special treatment, the eye symptoms had gradually disappeared in the course of a couple of years. Having, in the meantime, heard of one-sided exophthalmos in Graves' disease, I questioned her from this point of view and found that before I saw her in 1889, she had been severely shocked by the loss of a child, and was very nervous and subject to spells of palpitation of the heart for a year or two thereafter. In the summer of 1894 her mother noticed that her neck was larger than normal, but as she had not noticed this herself she had no idea when it first became so. Then (i. e. in May, 1895) I found her to have a well-marked goitre, a little larger right than left; pulse averaging 100 at my office (but she says it was less at home). V. = 20/20 o.ut. L. E. normal. R. E. hardly, if at all, exophthalmic; palpebral fissure perhaps a trifle wider than left; v. Graefe's symptom very perceptible; *upper lid can be turned easily.* In other words, while the ordinary symptoms of Graves' became more marked, the resistance-to-eversion symptom disappeared.

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* Read by invitation in the Ophthalmic Section of the New York Academy of Medicine, April 16, 1906.

In some unaccountable way I allowed the significance of this case to slip my mind, and only began to systematically examine my cases of Graves' disease for this condition about a year ago, since when I have seen the following cases:

CASE 2.—Mrs. P., age 42, seen Dec. 8, 1904. For six weeks has had double vision, and is nervous. S. P. Eyeballs normal inside and out; slight exophthalmos; v. Graefe's and Dalrymple's signs slightly marked; moderate goitre; pulse 120; paresis of left internal and inferior recti; *upper lids everted with much difficulty and then only partially, the central edge of tarsus being bent back out of sight and blood all squeezed out of tarsal plate and conjunctiva.* Is "nervous" and easily exhausted, but no marked tremor.

CASE 3.—Mrs. B., aged about 27. Since birth of baby, eight months ago, has had much anxiety and is nervous. Comes to me on account of puffiness of eyelids and excessive lachrymation. Latter is quite annoying and is much worse when she looks up. No asthenopia. S. P. eyeballs normal inside and out; V. = 20/20 o.ut; tearpoints normal but turned in rather more than usual; tissues just below the eyebrows seem hypertrophied and a little hyperemic, with suspicion of brownish color toward inner side (sign of Jellinek and Rosin); mere suggestion of exophthalmos; v. Graefe's sign slightly marked; Dalrymple's sign not present. *It is practically impossible to evert the upper lids in the ordinary way. The attempt to evert them succeeds only when a probe is used to forcibly push down upper edge of tarsal plate, and the eversion in maintained with much difficulty;* pulse 136; slight goitre and tremor.

In three other cases of Graves' which I have seen since the significance of this lid symptom occurred to me, it has not been present. These were all well-established cases of many months standing.

In considering this symptom, the question naturally arises, is not this difficulty of turning the upper lids the natural result of the general nervousness of these patients? Not at all. I am fairly conversant with the difficulties which refractory patients can oppose to turning their lids, but the symptom which I refer to is nothing of the sort. The patients in whom I have observed it have been perfectly docile and have turned the eyes down and have avoided orbicularis spasm in the most approved manner, without lessening the difficulty at all. Is it not then merely a concomitant effect of the exophthalmos? This also, I have no hesitation in answering in the negative, because the symptom bears no direct relation to the degree of exophthalmos. In old-established cases with marked exophthalmos, I have not observed it at all; while in the three cases in which I have seen it, the exophthalmos was either only moderate or so slight as to be questionable. In one case of extreme protrusion of the eyeball from retrobulbar tumor, I have observed some difficulty in everting the lids, but this was not nearly so marked as in Case 3, where the protrusion, if any existed, was barely perceptible; and it was of quite a different character, being plainly due to the great tension on the whole lid girdle.

Excluding then the exophthalmos as a cause of this symptom, it seems most reasonable to assume that it is due to a spasm or rather, an unnatural irritability, of one or both of the levators of the upper lid. As far as the symptoms go, they might be caused by either one, or by both of the levators; but in view of the close association between the striated levator and the recti muscles, none of which seem to be affected, it seems more probable that the affected muscle is the non-striated levator of Müller, which is innervated by the sympathetic.

This muscle is one which has really been seen by so few practicing ophthalmologists, and one which is so seldom affected by disease, that we are somewhat inclined, I think, to forget its existence, and the experiment of Wagner[1] which I have come across in looking the matter up, is so fundamental that I have thought it worth while to make a brief abstract of his original paper: A young woman was executed by a sword stroke. In something more than a half hour the remains were brought to the dissecting room in Göttingen, where Wagner at once stimulated the cervical sympathetic (which had been cut off an inch and a half below the superior ganglion) with the electric current. The result was a decided dilatation of the pupil and a slow but decided elevation of the upper lid. This experience was repeated several times during the next thirty minutes with gradual decrease in the effect of the stimulation. To meet the objection that the current may in some way have reached the striated levator, Wagner insists that the contraction was slow and altogether characteristic of non-striated muscle fiber, there being quite an interval between the application of the current and the beginning of the lid movement; while the lid stayed raised for some time after the current was shut off. This offered a marked contrast to the sharp twitches which occurred when the nerves supplying striated muscles were stimulated.

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[1] Wagner: Zeitschr. für rationelle Med. R. iii, Bd. v.

I know that the tendency at present is to discard the theory of sympathetic irritation as an element in Graves' disease, but there are some facts which indicate that directly or indirectly the sympathetic may be at least one of the factors in the production of the disease. Among these are the flashes of heat and cold and the increase in various secretions (i. e. as shown by diarrhea, diaphoresis, and increased lachrymation) which are prominent in some cases of the disease; also the fact that in dogs, stimulation of the sympathetic causes of exophthalmos. It is true that McCallum and Cornell,[2] who have given this point the most careful attention, were not able to produce exophthalmos by stimulating the cervical sympathetic in man, neither could Wagner in his experiment already referred to. Jonnesco, on the other hand, has been able to cause decided exophthalmos by strong stimulation of the human sympathetic: and extirpation and electrical treatment of the cervical sympathetic, have both been of benefit in some cases of Graves' disease.

The lachrymal gland is innervated both by the facial and the sympathetic, and another symptom observed by me in Case 3 may, if it prove general in such early cases, have an especial bearing on the sympathetic origin of the lachrymation. I refer to the fact that in this patient, whose earliest symptom of the disease was excessive lachrymation, this was much more pronounced when she looked up.

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[2] McCallum and Cornell. Med. News. Oct. 5, 1904.

Berger,[3] who has written most extensively on lachrymation as an early symptom of Graves' disease, says nothing about its occurring more markedly on looking up; but if subsequent observation should prove that such a connection between the action of the levator and the superior rectus on the one hand, and the secretion of tears on the other, really exists, it would not be difficult to harmonize this with the symptom of resistance to lid-eversion; since, if, as I assume, the cause of the latter symptom is a hyperexcitability of the levator, the exercise of its function might easily cause an overflow of energy into that portion of the sympathetic which increases lachrymation.

In assuming that the sympathetic is in some way at the bottom of some of the symptoms of Graves' disease, we are under no necessity of rejecting the theory of hyperthyroidism, for, while we may assume that the sympathetic is at fault from the original injury; that is, the mental shock, or whatever other external influence is blamed for the condition; we may, with equal propriety, assume that the disease is the result of hyperactivity of the thyroid and that the secretion has an especial affinity for certain parts of the sympathetic system. In either event, it is necessary to assume that certain parts of the sympathetic are immune to this injury or excitability, since dilatation of the pupil, which is perhaps the most constant symptom of the stimulation of the cervical sympathetic in man, is notably wanting in Graves' disease.[4]

It remains now to consider the relation of the resistance to lid-eversion to Dalrymple's sign, that is, the retraction of the upper lid which results in the exposure of some of the sclerotic above the cornea, in straight forward vision, in so many cases of Graves' disease.[5] A natural supposition would be that these two symptoms would coincide and would, in fact, be merely different modes of expression of the same condition; namely, a spasm of one or both of the levators of the lid. This relation, however, is by no means so simple. In all of the three cases in which I have observed the difficulty of lid-eversion, Dalrymple's sign either has been absent, or it has not been at all marked; while in two other cases which I have seen since my attention has been directed to this point, and in which Dalrymple's sign was very strongly marked, there was no difficulty in turning the lids. These, however, were cases of long standing and it is quite possible that an irritation which shows itself in the early stages as an irritability of the levator, producing an active resistance to the eversion of the lids, may, in a later stage of the same disease, become transformed into a static condition in which, while the lid remains at a higher level than normal, the active resistance to the eversion may have disappeared.

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[3] Berger: Arch. für Augenheilk., xlvi, p. 113.

[4] McCallum and Cornell have also felt the necessity of postulating some such division of the sympathetic and have endeavored experimentally to locate the point at which the division of the fibers occurs, so far, without any success.

[5] This symptom, of which v. Graefe's sign is merely an incomplete development, is still incorrectly described, in many standard works, as Stellwag's sign. Stellwag did indeed describe it, but not for many years after Dalrymple's article was published.

To sum up then; in certain cases of Graves' disease, one of the earliest symptoms is a marked involuntary resistance to the eversion of the upper lids. This symptom tends to disappear with the development of the disease, corresponding in this respect to the excessive lachrymation, and to the pigmentation of the lids (sign of Jellinek and Rosin). If this symptom should prove to be at all a common one, it will be of decided importance in diagnosis, for, while nothing is easier than the diagnosis of a well-developed case of Graves' disease, anything that can help the diagnosis in the earlier stages is of the utmost value, because it is then that the prospect of giving relief by any treatment is most promising.

Now, with some misgivings lest you think me cracked on the subject of new symptoms, I wish to add as a tailpiece to this communication a brief note on another early sign of Graves' disease, which doubtless many of you have noticed without thinking it worth mentioning. I refer to a certain hypertrophy or swelling of the tissues between the eyebrow and the eyelid proper. The patients are apt to speak of this as a "puffiness" of the lids; but that term does not describe the condition accurately. It is rather a solid-looking thickening of the tissues immediately beneath the eyebrow, sometimes with a slight redness of the skin. In two of my patients it was almost the first symptom to attract attention to the eyes. The only approach to a mention of this symptom which I have come across is in Sattler's monograph (*Graefe-Saemisch*, vol. vi, p. 954) where he says: "In the higher degrees of exophthalmos the upper lid is sometimes somewhat edematous," but this really does not cover the symptom which I refer to, which occurs in the early stages and without any marked exophthalmos.

I mention this last symptom, not so much from any sense of special proprietorship, but mainly to ascertain how commonly it has been noticed by your members, and perhaps to get some references to it which I have overlooked.

Addendum.—I have been much gratified to find that this symptom has also been noted by Dr. C. S. Bull, of New York City. In the discussion following the reading of my paper, Dr. Bull stated that he had recently noticed the difficulty of lid-eversion in three cases of Graves' disease. In two of these the exophthalmos was insignificant, while in the third it was pronounced. He also attributed the symptom to an undue irritability of Müller's levator of the lid.

THE USE OF THE ELECTRO-MAGNET AND X-RAY IN REMOVING FOREIGN BODIES FROM THE EYE.*

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Owing to the limitation of time at my disposal, I have decided to present only a few of the numerous slides, photographs and specimens I have had prepared. They have been selected, so far as possible, to illustrate the great variety of foreign bodies in the eyeball that the ophthalmic surgeon is called upon to remove. I have limited my paper to a consideration of foreign bodies in the posterior part of the eyeball, as Dr. Brunner will consider those in the anterior segment.

CASE 1.—F. A. B. Eye injured Dec. 12, 1900, by a piece of steel while working in a sawmill. Removed from vitreous at the Cleveland General Hospital Dec. 28, 1900. Splinter was removed with a small electro-magnet through counter opening in the outer lower quadrant of eyeball. At the time of the operation there was considerable ciliary congestion. Lens cloudy and was subsequently removed and a fairly good vision secured, about 20/70.

This patient illustrates very well a large number of cases as they present themselves to the oculist. The eye was injured about two weeks before coming under my care. The question whether there was a foreign body in the eye or not had to be determined, and with an opaque lens it was clearly impossible without an *x*-ray examination. But with the positive finding, as shown in the beautiful photograph and slide, there was no longer any doubt. The fragment was removed with the small magnet through a scleral opening with the most satisfactory results. In order to show you that such clearly defined radiographs of small foreign bodies in the eye are not exceptional, I show you

CASE 2.—F. G. P. Eye was injured March 1, 1900, by a small fragment from a hammer while removing head of barrel. Steel was

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* Read before the Ohio State Medical Society, Canton, May 9, 1906. All of the cases were illustrated with lantern slides, photographs and specimens.

removed from vitreous March 7, 1900, same as preceding case, through the sclera. Traumatic cataract was removed later and vision of about 20/30 secured. Notwithstanding the repeated assertions of Haab that such cases would be followed by a detachment of the retina and ultimate blindness, it is contrary to my experience. My patients with foreign bodies in the retina or vitreous have recovered better when removed through the sclera than when removed through the anterior segment of the eye with the large magnet. Not only have they recovered better from the operation, but the visual results have been better.

Case 3.—Mr. O. was injured Feb. 3, 1903. Was a student at Case School and was struck by a piece of steel from a hammer while in the laboratory. Assured by the family physician there was nothing in the eye, but it became so painful that he consulted me on February 11, and I found the eye very much inflamed and tender on pressure. *X*-ray showed small foreign body in the vitreous. Removed with large magnet through the cornea February 14. For a time eye was quiet, but became painful and was enucleated about a month later at the Cleveland General Hospital. This case was very much like Cases 1 and 2, but the foreign body was removed through the cornea with large magnet, and the eye ultimately lost through iridocyclitis. From my present experience I should in such a case remove it through a scleral opening with small magnet and only resort to the large magnet in case I should fail to get it with the small one.

Case 4.—B. M. was injured at the Cleveland Steam Boiler Works on the morning of Aug. 22, 1902. A radiograph was taken immediately and the steel removed from the vitreous at St. John's Hospital the same day with small magnet through the sclera. Although there was considerable haziness of the lens at the time of the injury, it never became opaque and the vision remained good. The patient was seen about a year ago. Please note the small size of the piece of steel. It seems to me that if the *x*-ray will reveal as small a piece of steel as that it is certain that none will escape detection. Indeed I have yet to see a case in which Dr. Iddings has failed to find a foreign body either in the eye or orbit when it was present, and in numerous cases, when he has assured me the findings were negative, the future history of the case has never led me to think he might be mistaken. In this case, as in one other, there was a falling off of the hair on the side of the head following the *x*-ray exposure, but in both cases it grew again as good as ever.

Case 5.—R. W. was injured Oct. 11, 1901. Steel was removed from vitreous at St. Alexis Hospital Oct. 13, 1901, with a small magnet through scleral opening. In this case a cataract developed and was subsequently removed with vision 20/20. I regret the slide has been misplaced, but show you the photograph and specimen, which, you see, is small. But such small pieces will, if left in the eye, destroy vision and cause sympathetic inflammation. In years passed I have repeatedly enucleated eyes to prevent sympathetic ophthalmia and found foreign bodies no larger than this.

Case 6.—J. K. was injured at the American Ship Building Company Feb. 5, 1903. There was a large cut across the cornea and the anterior chamber was full of blood so that the deep structures could not be seen. Dr. Iddings made an *x*-ray photograph, which revealed a large foreign body in the lower part of the vitreous humor. The patient entered St. Alexis Hospital, and on the morning of February 6 I removed a piece of steel about the size of a split pea through the incision on the lower part of the eyeball with a small electro-magnet. The eye made a rather slow recovery, owing to an accidental injury several days after the operation. The eye is blind, but presents a fairly good appearance, and I think there is slight danger of sympathetic affection of the left eye. This case presents a typical one of a more severe injury to the eye, and yet one in which a good-appearing eye is preserved and the necessity of wearing an artificial eye averted. It is one of the cases in which Haab may attribute the loss of vision to the scleral opening, but I believe the vision was irreparably lost from the beginning and could not be preserved by removing the foreign body anteriorly.

Case 7.—Resulted disastrously. Child about 2 years old was playing in the yard and was injured in the eye. Was brought to me two days later with opaque lens. *X*-ray revealed small foreign body in the vitreous, which was removed with large electro-magnet through the cornea. Panophthalmitis came on rapidly and the eye was enucleated.

Case 8.—Mr. O. Injury received in blacksmith shop Oct. 3, 1903, resulted disastrously, in which the large magnet was used. Removed foreign body from the original wound in the cornea the same day with large electro-magnet at the office. Purulent chorditis rapidly developed and the eye was enucleated. It will be noticed that there is an eyelash sticking to the piece of steel, which was removed with it from the vitreous. This may explain the source of infection.

It is probable that in both these cases the eyes were infected so that nothing could have prevented the panophthalmitis, and yet I have had this occur so much more frequently after the use of the large magnet than with the small one that I am constrained to believe that the dragging of the foreign body through the entire length of the eyeball with the large magnet opens up a new source of infection that may be escaped if the foreign body is removed through the sclera, near where it is lodged. I do not wish to be misunderstood as condemning the use of the large magnet in all cases, because I think in many cases of recent injury, when the patient is seen within a few hours, that it is better to remove the foreign body at once through the original wound, not waiting to have an *x*-ray examination made, especially if valuable time is lost in making the examination. Of course, in a case like the following, in which the foreign body could be located with the ophthalmoscope, there should be no occasion for an *x*-ray examination.

Case 9.—W. S. was injured Oct. 29, 1903, while trimming a shovel. Was seen within a few hours. Wound penetrated sclera 3 mm. back of cornea. Bright piece of steel could be seen with ophthalmoscope extending across the vitreous. Was immediately removed through the original wound with large electro-magnet. Patient was sent to St. Alexis Hospital and made a rapid recovery with perfect vision (Snellen) 20/20. Vision has remained good, with no contraction of field.

Case 10.—W. F. S. Injury received March 1, 1904. Was seen within a few hours after the injury. Large irregular wound in the cornea, prolapse of iris, hemorrhage and considerable escape of vitreous so that the deep structures could not be seen. Large irregular piece of steel was removed with large electro-magnet. No *x*-ray taken. Patient made rapid recovery. No reaction, but eye is blind, with puckered cicatrix. No perception of light. Eyeball slightly smaller than other. Perfectly quiet when seen a few weeks ago. No artificial eye needed.

Case 11.—C. L. was injured at General Chemical Company's works Feb. 27, 1905. Saw patient one hour after injury. Removed small piece of steel with large electro-magnet through original wound. Tension increased during next few days. Eye painful. Extracted traumatic cataract. Patient made rapid recovery. Vision about 20/20.

A number of cases like Cases 10 and 11 could be reported in which foreign bodies have been removed immediately with the large electro-magnet, and this I believe to be good practice under favorable conditions, and yet I should be very sorry to see the large electro-magnet placed at the disposal of inexperienced house physicians or others, to be used recklessly in every case, regardless of size or location of foreign body, or character of the injury received. I have no doubt that the reckless, inexperienced use of the large magnet, without the use of the ophthalmoscope, would have resulted disastrously in Case 9.

If I had a piece of steel in my own eye I should prefer to take my chances in waiting a little longer and having the foreign body accurately located either with the ophthalmoscope or the *x*-ray before having an effort made to remove it. I believe that one reason my results were so poor in my early cases was due to the practice I then followed of using the electro-magnet as a method of diagnosis. I believe the pulling of the foreign body around in the eye to elicit pain and thereby made a diagnosis, was a fruitful source of failure.

In 1893, in a paper I read before the Ohio State Medical Society,[1] after ten years' experience with the electro-magnet in something over 100 cases, including 15 or 20 in which foreign bodies were removed from the vitreous, I could not report a single case of preservation of useful sight after removal of the fragment of iron or steel from the vitreous, although a few cosmetically good eyeballs were preserved. In 1900, in a paper read before the Cleveland Medical Society,[2] I was able to report several cases in which useful vision was preserved, and during the past six years, thanks to the usefulness of the *x*-ray and the large magnet, I could report 30 or 40 cases in which useful vision has been preserved and many more good eyeballs retained. Some of the limitations of the large magnet may be illustrated by the following cases:

Case 12.—A. S. Injured in South Amherst quarries by a piece of wedge Oct. 3, 1905. Several attempts were made to remove it with the large magnet, became so painful that efforts were desisted and general anesthetic given. Repeated attempts failed to dislodge it with the large magnet, although an opening was made in the cornea. Patient refused to have eye enucleated as was advised. On Oct. 19, at St. Alexis Hospital, I made a counter opening through the sclera back of the foreign body and removed it without the slightest trouble with the small magnet. This was after several attempts to remove it with the large magnet by myself and other competent ophthalmologists had failed. The eye became quiet and preserved a good appearance and apparently is free from danger of sympathetic ophthalmia. Another case in which the large magnet failed either to reveal or to remove the foreign body was that of

Case 13.—P. S., Berea, Ohio, was struck in the eye April 27, 1904, with a piece of steel while watching some men at work in a blacksmith's shop. Was sent to Lakeside Hospital same day.

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1. Transitions, Ohio State Medical Society, 1893.
2. Cleveland Medical Journal, Oct., 1900.

Giant magnet was used, but no foreign body found. Patient discharged from hospital and came to see me June 1. X-ray showed foreign body deep in the orbit. The next day, at St. Alexis Hospital, attempted to remove it with small magnet. Could touch foreign body with point of magnet, but could not move it. I then passed a magnet behind the eyeball and could have removed it, but the eye was so badly disorganized, and as there could never be any useful vision, and as there was some evidence of sympathetic irritation in the other eye, I decided best to enucleate. See specimen. The foreign body is lodged in the sclera in the macular region about half inside and half outside the ball.

Case 14.—Another case in which the large magnet failed to remove a foreign body from the orbit. D. P. injured right eye while working on a street railroad. The foreign body passed entirely through the eyeball and lodged in the apex of the orbit and was impacted in the bone. So that when the eyeball was enucleated and the point of the magnet brought as nearly in contact with the foreign body as possible, yet it would not move it and was only removed after prying it loose with a strong elevator.

Another class of cases in which the electro-magnet fails is that of foreign bodies such as brass, shot, glass, stone, wood, etc., which are not influenced by the magnet. Fortunately these cases are not as frequent as injuries from steel and iron.

Dr. Sweet[3] has published an interesting paper on the magnetic properties of steel alloyed with other metals. His investigations showed that, with the exception of manganese steel, the magnetic induction of steel is only slightly affected by the addition of the steel hardening metals. In the higher percentage of nickel steel some difficulty would be experienced in the removal of a splinter of metal from the eye, particularly if the body were covered with exudation.

Case 15.—M. M., Youngstown, Ohio, railroad engineer, was injured April 20, 1902. X-ray showed large foreign body in the vitreous. Attempt to remove with electro-magnet failed. Eye enucleated. Foreign body found to be a large piece of brass.

Case 16.—M. L., injured Oct. 13, 1903. Six-year-old child was striking old-fashioned percussion caps on a stone with a hammer. Something struck the eye. Not knowing whether it was a piece of stone, hammer or cap, she was brought to me the following day. X-ray revealed a large foreign body in the vitreous. Could not be removed with the electro-magnet. After repeated unsuccessful efforts with the magnet, also forceps and wire snare, the eye was enucleated. After the eye was removed, notwithstanding the fact that the piece was large (about one-third the percussion cap), I spent a long time trying to fish it out through the original opening and was unable to do so, which demonstrated to me conclusively the difficulty of removing foreign bodies from the vitreous which are not attracted by the magnet.

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[3] Ophthalmic Record, p. 264, 1905.

Case 17.—G. W., Medina, Ohio, 9-year-old boy, commenced celebrating the Fourth of July, 1904, by shooting himself in the eye with a Flobert rifle. There was a perforation of the cornea, slight prolapse of the iris and traumatic cataract when I saw the boy several days later. Although the eye was quiet, it seemed probable that the shot was in the eye. The x-ray showed, however, that the shot was in the orbit and not in the eyeball, so that the eye was not enucleated, and he now has good vision. In the following case it seemed positive that there was a shot in the eyeball, yet the x-ray demonstrated that there was none either in the eye or orbit.

Case 18.—Mr. P. B., LaGrange, Ohio, was hunting rabbits on Thanksgiving Day, 1904, when he was shot in the face and neck by a friend. He was brought to me the same day. I found a ragged scar at the edge of the cornea, there was quite a large prolapse of the iris and the anterior chamber was full of blood. There seemed to be little or no doubt that there was shot in the eye. The x-ray showed no shot in the eye or orbit. I replaced the iris and used eserin. Patient made rapid recovery. Traumatic cataract subsequently removed and good vision secured. The next case was injured on the same day and did not escape so fortunately.

Case 19.—Mr. C., Wellington, Ohio, while standing on a stump on Thanksgiving Day, 1904, gun discharged accidentally in face. Eye injured, but not thought to be serious. Iridocyclitis developed. Came to see me Feb. 2, 1905. X-ray revealed two shots in eyeball, also one flattened on upper wall of orbit and one deep in orbit. Eye enucleated by Dr. Gregg.

Case 20.—Mr. B., driver of a grocery wagon, was shot by a 4-year-old boy, who had just received a present of a Flobert rifle. The driver dropped from his seat to the ground unconscious and was taken to the Cleveland General Hospital, where I saw him. The ball had penetrated the eyeball, as shown in an excellent x-ray radiograph. Not being able to remove the shot, the eye was enucleated.

Case 21.—One of the most satisfactory cases, in which the foreign body was located in the anterior chamber. Mr. K. was injured in the works of the American Steel and Wire Company in September, 1899. Was under the care of the company's surgeon two or three months. Was ordered back to work two or three times, but each time gave it up on account of pain in the eyes. He suffered most constantly with pain. There was a slight ciliary congestion, but the pupil was active, lens clear, vision good, small scar on cornea. Had visited various dispensaries and had been pronounced a malingerer. *X*-ray revealed a foreign body in the anterior chamber which I removed at St. Alexis Hospital March 21, 1900, which proved to be a piece of cinder resembling a piece of glass.

Case 22.—Mr. S. C. consulted me April 6, 1896. Was struck in the eye with a splinter of steel three years previously. Said to have been removed by company's surgeon. Eye had been painful ever since. No perception to light, soft; small pupil, iris tremulous, severe ciliary congestion, tender on pressure, small cicatrix over cornea. No fundus reflex. Right eye showed considerable sympathetic irritation. Photophobia, weak accommodation, etc. Suspected foreign body in vitreous, counter opening made and small magnet applied to lower outer quadrant of eye and small piece of steel removed. Rapid recovery, with disappearance of all bad symptoms of both eyes, and up to the present time there has been no further trouble.

CONCLUSIONS.

1. I believe with Hirschberg that nothing but the early extraction of the splinter or the premature death of the patient can prevent blindness when the foreign body is retained in the vitreous or retina. So that the removal of the foreign body is imperative.

2. Both the large and small magnet have advantages, and it is desirable for the ophthalmic surgeon to have access to both. The very large magnets of the physicists are not practicable, and I believe the tendency of the future will be to replace the so-called giant magnets now in use with the medium-sized ones, similar but somewhat larger and stronger than Sweet's, which are more easily handled and if properly constructed will, in my opinion, do all that can be done with the larger ones.

3. As to the sideroscope, I was never able to secure one that proved satisfactory, and since I have been using the *x*-ray I have discarded it altogether.

4. If I could have the immediate services of a skilled operator, I should have *x*-ray photographs made of all cases in which the foreign body can not be seen with the ophthalmoscope. In recent cases that would entail the loss of even a few hours I am not sure but that many times it is best to remove the foreign body at once through the anterior chamber or through the tract of the original

wound with the large magnet, and yet I must confess that in many such cases I have been disappointed in the results.

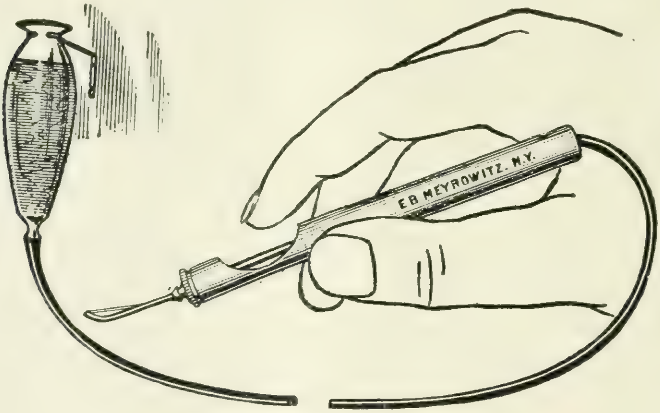
5. Statistics in these cases, as in many others, are misleading. I can only give some general impression. Splinters removed from iron workers in our shops are generally sterile, and if seen early before having been infected by injudicious friends or doctors the prognosis is good. If the foreign body is small and not too much damage done to the eye, possibly 90 per cent. of such cases should recover. If not with useful vision, at least with a good-appearing eyeball. I believe this is true without reference to the location of the injury. Contrary to the teachings of the text-books and my early instructors, I have had more and better recoveries when penetrating the sclera, even though involving the ciliary region, than when through the cornea, iris and lens. And in uninfected cases I do not have that fearful dread of sympathetic ophthalmia with which I first began to treat such cases. On the other hand, injuries received from infected instruments such as are used about the house or farm, a very large percentage of such cases will be lost. On the whole, I may say of the patients who come to me with foreign bodies in the posterior half of the eyeball, most of them are old injuries, that is, from a few days to several months, that if I should retain any vision in 50 per cent. and preserve a cosmetically good eyeball so as to avoid wearing an artificial eye in 25 per cent. more, I should be approximately near the truth as I could estimate. In other words, one out of four of such eyes would have to be enucleated and only about half of them would retain any sight. But even this is a wonderful gain over what we can do to save eyes containing non-magnetic foreign bodies in the posterior segment, practically all of which have to be sacrificed. Before the introduction of the electro-magnet and the *x*-ray the condition of the unfortunate individual with a splinter of steel or iron in the eye was no more hopeful than that of a boy with a Flobert shot in his eye now. But even in these hopeless cases the *x*-ray proves a great boon occasionally in demonstrating that the foreign body is not in the eyeball, but has passed entirely through it or, may be, only injured it.

AN INTRAOCULAR IRRIGATOR.

Allen Greenwood, M.D.
Ophthalmic Surgeon to the Boston City Hospital.
BOSTON.

(Illustrated.)

The apparatus illustrated below is only brought to your attention after a thorough trial extending over two years. This irrigator was devised with the object of combining lightness and ease of manipulation with the absolute assurance that the return flow of irrigating solution from the anterior chamber should be as free as possible. To insure lightness the metal tube through which the rubber feed tube passes is made very thin, light and only about the size of an ordinary round pencil. About half an inch from one end a crescent-shaped segment is removed to allow the finger-tip to completely compress the rubber tube at that point and thus control the flow. The free return of fluid from the anterior chamber is insured by the little metal rod which can be seen in the illustration extending across the concavity of the tip like the string to a bow. When the tip is inserted into the anterior chamber, or even into the lower part of the posterior chamber as is my custom, the rod serves to elevate the corneal flap and thus permit a free return of the débris laden fluid. After the expulsion of a lens I never make pressure on the cornea to assist in the removal of cortical débris but irrigate as my routine method for the removal of such débris in all my cataract cases. Since using this irrigator in this way for over two years I have not had a single case of loss of vitreous.


E B MEYROWITZ. N.Y.

The whole apparatus may be boiled and thus thoroughly sterilized. When sterilized and filled with sterile salt solution just prior to being used, the metal tube and tip may be dropped into the reservoir until the moment for irrigation arrives.

The apparatus may be obtained from E. B. Meyrowitz, of New York, who so kindly furnished me with the cut for this illustration.

REPORT OF A CASE OF HYPERTROPIA.*

JOSEPH ELLIOTT COLBURN, M.D.

CHICAGO.

The operation for advancement of a rectus muscle is, under ordinary conditions, a simple and frequently a satisfactory procedure. The following is a history of a case, unfortunately both complicated and troublesome:

Mr. ——, aged 33 years, a business man in a neighboring city, came to me in April, 1904, at the suggestion of an oculist who had had him under observation for several months subsequent to a two-years' treatment for various nervous phenomena, which, after eliminating locomotor ataxia, paresis, etc., had been diagnosed, I suppose, for the sake of a name, as neurasthenia. As this is not a "biographic clinic," I shall not recite the symptomatic feature of the case, though it is rather interesting. My history furnishes the following: Almost constant diplopia; apparent right hyperphoria, head posed to the right and chin elevated. Head in normal position, right hyperphoria, 9° prism produces fusion; with Maddox rod, 16°; with rest prism followed by Maddox rod, 28°; range of motion of right eye, normal; of left eye, limited to 10° in upward field; right circumduction = 18°, left circumduction = 0°.

My patient could at all times force a fusion for a short period. After obtaining four satisfactory readings I decided to advance the left superior rectus. The tendon was exposed and advanced, being held by three sutures. As there was excessive hemorrhage, adrenalin, 1 to 4,000, was used during the operation. The patient complained of severe pain, which frequently occurs after the use of adrenalin extracts, and he was told that he could use hot applications for half an hour after his return to his rooms. He continued the use of the hot cloths during the night and until he revisited me at 10 a. m. the next morning, when I found the lids edematous and the conjunctiva covered with a thick exudate. The cornea was gray, rough, and the epithelium broken at the upper margin. The eye was exceedingly painful. Argyrol was applied to the conjunctival wound and later bichlorid, 1 to 3,000, was freely used. On the next day the false membrane was easily stripped from the lids and the ocular conjunctiva: the cornea was clearing and the eye less painful. Argyrol was applied to the conjunctival wound and frequent douching with boric acid continued. Atropia was used to relieve the pain. The recovery was uneventful. June 14 I advanced left superior rectus with normal recovery. The refraction, which has been R. +

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* Read before the Chicago Ophthalmological Society.

1.50 sph. + 0.38 cy. 90° axis; L. — 1.38 sph. + 0.50 cy. 90° axis. was now changed in the left eye to L. — 1.75 sph. + 5. cy 90° axis, and for a time the left hyperphoria remained 5°, then 3° and 1°, and finally was relapsing to its former position, but before the relapse was complete I did a graduated tenotomy of the right superior rectus, again securing a slight overcorrection, which again relapsed to right hyperphoria 10°. Meanwhile my patient had consulted several eminent gentlemen and had received various opinions.

In September of 1905 he returned to me and I again advanced the superior rectus, under general anesthesia, making sure that the muscle was freed from adventitious bands connecting with ocular or orbital walls. The advancement resulted in an overcorrection of 12°, which soon relapsed to its former manifest error of 9° or 10° of right hyperphoria. I was not surprised that my patient thought seriously of consulting a gentleman in an Eastern city to see if better results could not be obtained. My advice, after the experience of the above failures, was to submit to an exploration of the inferior rectus of the left eye, with possibly a tenotomy, and the use of regulating sutures. After consulting with one of our Eastern colleagues my patient returned and gave me free hand. I opened the conjunctiva over the inferior rectus of the left eye, exposed and completely detached the muscle, which I held at the sides of the suture. The muscle was now freed from the conjunctiva and orbital tissues. I then found a band of unusual thickness limiting the traction made on the muscle which was severed. The muscle was examined on its ocular side and an adventitious head severed, equal in size to two-thirds of the thickness and breadth of main head. The eye was tested and the position was found to be left hyperphoria 5°. One suture was placed and the other removed. Eight weeks after the operation there was practical orthophoria, full range of motion and perfect ocular and general comfort.

It is my opinion that we had to deal with an adventitious band of unusual distribution, weight and rigidity, and not with a long superior or overstrong or short inferior muscle, and that the superior muscle should have been advanced only after freeing the tendon of the inferior rectus. How was I to know that such was the case?

In the light of my first successful advancement in this case, which was followed by an increase of astigmatism from + 1.25 at 90° to + 6.50, it would seem that the great increase of the vertical curvature should have suggested a possible resistance on the part of the inferior rectus or some of its connective checks, but it did not until the complete failure of the second operation to correct the error. The astigmatism is now slowly decreasing at the rate of about .50 diopter every two months. Left vision = — .38 sp. + 3.38 cyl. at 90°, 20/20 with the full correction at all times during the past eighteen months.

The long train of nervous symptoms have fully disappeared and my patient is able to engage in his business.

A CASE OF ACROMEGALIA, WITH INTERESTING EYE SYMPTOMS.*

E. H. Porter, M.D.
TIFFIN, OHIO.

(Illustrated.)

The patient, Mrs. H., a farmer's wife, was referred to me by Dr. N. C. Miller, of Fostoria, for examination of her eyes and relief from distressing eye symptoms. She was 47 years old, had been married 17 years, and is the mother of two healthy children. The family history was absolutely negative, all of her immediate family being in good health, with no history of goiter or any similar disease. The family seemed to be normal, well-to-do country people.

The patient gives a history of first noticing an enlargement of the neck about five years ago, since which time she has had various kinds of treatment, with a gradual increase of all symptoms. About two years after the enlargement of the thyroid first developed she became conscious of a gradual enlargement of her face, hands, arms, legs and feet; in fact, her whole body was getting bigger and her face was becoming very coarse.

The case was first seen in April, 1905, and examination revealed the following facts: A well-nourished woman of average mental acumen, though all her faculties seemed sluggish. The eyes were prominent, with marked exophthalmos, face slightly asymmetrical, with right eye more prominent than the left and marked proptosis of right upper lid. The conjunctiva was normal, cornea clear, anterior chamber moderately shallow in both eyes, iris normal, pupils sluggish, not responding quickly to light reflex, marked divergent strabismus in right eye, excursions of the left eye less than the right in all directions. There is a history of headache for years.

V. O. D. 6/20; O. S. absolute amblyopia, no response to any light stimulation. The thyroid gland was so greatly enlarged that both isthmus and lobes caused pressure on the trachea. The neck measured 16½ inches at the base and 16 inches at the top. Pulse 120, with distinct bruit heard over both carotids. The whole face was enlarged, and the hands, as shown in the photograph, were brawny with sausage-like fingers. X-ray examination showed pronounced enlargement of all the long bones of the hands and forearms.

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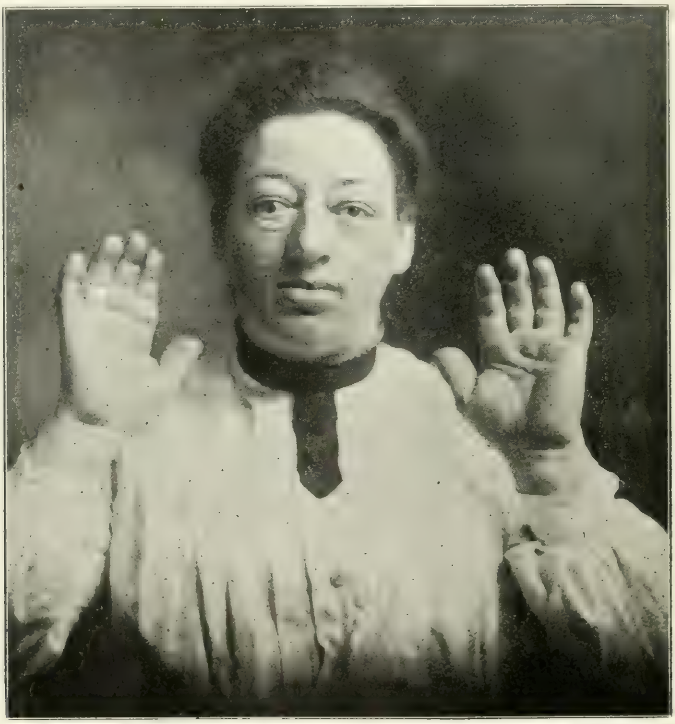
* Read before the Ohio State Medical Society, Canton, May 9, 1906.

The pupils were dilated with atropin, and a careful examination of the interior of the eyes was made. O. S.: Disc, white and atrophic, cribriform plate very clear, arteries mere white threads, veins less prominent and about one-half normal size, retina anemic, with chorioidal vessels plainly shown, but no evidence of a previous retinitis or chorioiditis. O. D.: An entirely different picture was presented. There were evidences of an acute neuro-retinitis with minute splashes of silver luster in the region of the macula lutea. Disc gray in color, the outlines of the swollen papilla somewhat obscure, the arteries smaller than normal, though the change was not so marked as in the left eye; veins slightly congested. The field of vision was contracted.



Diagnosis.—Neuro-retinitis from some toxin, probably thyroid, with marked exophthalmic goiter and acromegalia. The patient was sent back to Dr. Miller, as I could do no more for her than he could, requesting the use of thyroid extract and potassium iodid. For the past year she has been under the doctor's care and has been given careful treatment, the following drugs having been given as the symptoms seemed to demand them: Thyroid extract, potassium iodid, echinacea and calcium chlorid and bromid of gold and arsenic. At present the patient presents the same outward appearance as a year ago. The enlargement of the thyroid remains the same, though the heart is greatly improved. Vision in the left eye gone; in the right, about 12/20, greatly improved, the patient being able to see much more clearly and read good-sized type without glasses. She is much better physically and delighted at the improvement in her condition.

Recent literature has had a good deal to say regarding the relationship existing between enlargement of the thyroid and acromegalia, a possible cause of either or both conditions being some disturbance of the hypophysis cerebri or pituitary body, though as yet we are in the dark as to the exact pathology of these diseased conditions. Hypersecretion in the thyroid with its consequent chain of classical symptoms, is the latest accepted cause of exophthalmos, though no one has yet discovered what gives rise to the pathologic changes. Notable work in this direction has been done by Dr. Crile, of Cleveland.

The diagnosis in this case was made from the following conditions:

Sausage shape of fingers and enlargement of the long bones with no curve; symmetrical enlargement of the hands; enlargement of the facial bones, giving an elliptical shape to the face; dirty, blotchy, coarse appearance of the skin; prominence of eyebrows; exophthalmos; enlarged thyroid; tachycardia and the general facies and resemblance to cases of acromegalia seen in foreign clinics.

OCULAR SIGNS AND COMPLICATIONS OF ACCESSORY SINUS DISEASE.*

JOHN GREEN, JR. M.D.

ST. LOUIS, MO.

It has been recognized for many years that certain gross abnormalities of the eye and orbit—for example, orbital abscess and atrophy of the optic nerve—often originate from suppurative inflammations or neoplasms of the accessory sinuses of the nose; but it is only within the past decade that ophthalmologists have come to appreciate the important rôle of sinus disease in many less obvious organic and functional ocular troubles. With a better understanding of the relationship between sinus and ocular disease, the conviction has been growing that certain ocular conditions of obscure etiology which, in the past, have been vaguely characterized as "idiopathic," "rheumatic," etc., can, in many instances, be traced to sinus trouble. In view of these relations, the question arises whether the separation of the specialties of ophthalmology and rhinology—a separation pretty generally accomplished in the larger centers of population—has been altogether a move in the right direction. At first thought, it might seem perfectly rational to insist on the association in the practice of a single individual of two regions standing in such intimate anatomic relationship as the eye and nose. But when we take into consideration the difference in the character of most of the problems that confront the rhinologist and ophthalmologist, demanding a high degree of technical skill of a widely different character, I believe we are justified in assuming that the greatest good will come from a separation of these specialties, provided the ophthalmologist constantly bears in mind that he is dealing, not merely with an eye that accidentally happens to be in the body, but with a human organism possessed of a nose and nasal sinuses; and, on the other hand, that the rhinologist does not forget that the orbit, the ocular muscles and the eyeball are within speaking distance of his sacred precincts.

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* Read before the St. Louis Medical Society, March 17, 1906, as part of a Symposium on Diseases of the Accessory Sinuses of the Nose.

I will first review briefly the more important ocular conditions associated with disease of the accessory sinuses and then allude to the ocular signs of sinus trouble which might lead one unskilled in rhinoscopic examination to suspect the existence of sinus disease. I am aware that various affections of the nose, as, for example, adenoids and certain forms of rhinitis, may give rise to ocular signs similar to those of sinusitis, so that a diagnosis based solely on such signs can at best only be presumptive. However, as the determination of the existence of nasal disease is the important point, we should be satisfied to leave the determination of its precise character to the rhinologist.

Affections of the Orbit.—It is probable that the majority of inflammations of the orbit originate from a sinusitis. The clinical picture is the typical one of orbital phlegmon, with swelling of the lids, chemosis and exophthalmos. It is sometimes possible to determine the particular sinus involved by the direction in which the globe is displaced. Thus, downward and outward dislocation is often significant of disease of the frontal sinus. Dislocation of the globe without orbital inflammation may be occasioned by a chronic distension of the sinus walls. Variations in the degree of exophthalmos are rather characteristic and are to be explained, as pointed out by Posey,[1] as a consequence of variations in the patulency of the sinus orifices.

Affections of the Optic Nerve.—The optic nerve is especially prone to be implicated in sphenoiditis and posterior ethmoiditis, though the involvement is usually slight. If the sinus inflammation is prolonged and severe, a true retrobulbar inflammation of the nerve may develop. Tumors of the sphenoid do not ordinarily involve the optic nerve, but may, exceptionally, cause progressive atrophy from pressure.

Affections of the Extraocular Muscles.—Complete paralysis of all the ocular muscles may, in rare instances, be traced to an apical cellulitis of the orbit, of sphenoidal or ethmoidal origin. Of much greater frequence are partial paralyses of a single muscle or group of muscles. Such pareses may occur in both suppurative and catarrhal conditions of the sinuses. They are to be explained as the result of participation by the muscle in the inflammation of the contiguous sinus or by reason of direct implication of the nerves as they enter the orbit.

Affections of the Lachrymal Apparatus.—An empyema of one of the sinuses may empty into the lachrymal sac. More frequently the pus discharges into the tissues surrounding the sac, there giving rise to the so-called prelachrymal abscess. Such cases very closely resemble true abscess of the sac by reason of the distension of the latter from closure of its openings. The differential diagnosis is established by the failure of the probe to release pus from the sac.

Affections of the Lids.—A moderate edema of the lids, most marked in the morning and on bending forward, is frequently associated with sinus disease. It is often unilateral, corresponding to the side of the affected sinus and is apt to be confined to the nasal half of the upper lid. Inflammation of the lid margin associated with chronic conjunctivitis is often found in cases of sinusitis.

Affections of the Cornea.—Herpetic-like blisters of the cornea in consequence of implication of the fifth nerve as it passes along the outer wall of the sphenoidal sinus have been recorded by Posey[2] and Ellinger.[3]

Affections of the Choroid.—Risley[4] and Fish[5] have described cases which seem to indicate that certain choroidal inflammations may originate from diseased sinuses. It has been suggested that sinusitis, by causing congestion and spasm of the ciliary muscle, might give rise to myopia. Such claims, as well as those which ascribe certain cataracts and glaucomas to sinus disease, can only be regarded as pleasant flights of the ophthalmo-rhinological imagination.

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[1] Jour. A. M. A., Sept. 9, 1905, p. 747.

[2] Jour. Eye, Ear and Throat Diseases, March-April, 1905.

[3] Zeitsch. f. Augenh., 1905, vol. i, p. 174.

[4] Penn. Med. Jour., vol. vii, p. 461.

[5] Am. Jour. Ophthalm., December, 1904.

Not infrequently, the first intimation of sinus trouble is indicated by symptoms referred to the eyes. St. Clair Thompson[6] states: "Many cases present themselves in the first instance to the ophthalmologist, so much do the eye symptoms induced overshadow all others." It behooves the latter, therefore, to be on his guard lest he misinterpret symptoms of which some are scarcely to be distinguished from those of uncorrected ametropia or muscular imbalance. Many patients with sinus disease are, indeed, also the subjects of refractive anomalies, in which case the symptoms are partly ocular in origin. In these cases the most exact correction of the optical error will not alone avail to free these patients of their disability and I believe that the sinus trouble should be brought well under control as a preliminary to the prescribing of glasses.

One fact that should always be borne in mind is that the ocular symptoms of sinusitis are characterized by marked variations in intensity. I have one day seen a patient with sinusitis in the greatest misery on account of severe hemicrania, copious lachrymation and intense photophobia and fever. The following day not a sign or symptom remained. This, I assume, is another indication of variation in the degree of patulency of the sinus openings.

A distinguishing feature of the headache of sinusitis is that it occurs in the morning. It may be a continuous pain with exacerbations or partake of the character of a neuralgia or hemicrania. The location of the pain is often significant of the sinus affected. With regard to the value of headache as a diagnostic sign and its frequency in nasal trouble, I agree with the statement of St. Clair Thompson[6] that "the various forms of headache, hemicrania and neuralgia may be symptomatic of sinus affection and I am inclined to think that in adults nasal suppuration is only less frequent as a cause than errors of refraction."

A valuable sign of frontal and ethmoidal affection, whether suppurative or catarrhal, is the pain evoked by pressure against the upper inner wall of the orbit, in the region of the pulley of the superior oblique. This area is often exquisitely sensitive, so much so that the slightest pressure will cause the patient to wince. Its value as a diagnostic sign is increased by the absence, or at least the diminished pain on pressure over the opposite fronto-ethmoidal region. In frontal sinusitis the skin at this site is often reddened and swollen.

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[6] Posey and Wright: Dis. of the Eye, Nose, Throat and Ear, 1903, p. 939.

In connection with other symptoms, the presence of edema of the lid, of the character described above, may be of diagnostic significance. This sign may be present in intranasal disease other than sinusitis.

Asthenopia persisting after the correction of the refraction or muscular imbalance should not, as is often the case, be ascribed to neurasthenia, or to the "inborn cussedness" of the individual, but should at once suggest a rhinoscopic examination. Your patient may declare positively that there is no nasal trouble, a statement which should not in the least swerve you from your purpose. In a certain proportion of cases, sinus disease will be revealed. The asthenopia appears to be due to accommodative weakness and insufficiency of the internal recti. It is remarkable how quickly such patients regain ability to use the eyes on institution of appropriate nasal treatment.

A unilateral edema of the nerve of which the ophthalmoscopic signs are blurring of the papillary edge and dilatation of the retinal veins may be the sole sign of a posterior ethmoiditis or sphenoiditis. In such cases visual tests under diminished illumination will often determine a notable falling off in vision on the affected side. Perimetric examination may show central and paracentral relative scotomata or concentric contraction of the field.

In the presence of unilateral exophthalmos, nasal examination should always be made. The same procedure is advisable in choroidal troubles and opacities in the vitreous of which the cause is not obvious.

In many cases of sinus diseases the diagnosis presents many difficulties, even to the skillful rhinologist, and I am inclined to agree with Jackson[7] that often more reliance can be placed on a certain clinical association of symptoms than on the rhinoscopic findings.

3908 Olive Street.

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[7] Jour. A. M. A., September 9, 1905, p. 753.

AN UNUSUAL CASE OF METHYL ALCOHOL POISONING.

WITH A NOTE ON FORMALDEHYD AMBLYOPIA.*

H. Gifford.

Professor of Ophthalmology and Otology, University of Nebraska.

OMAHA, NEB.

Cases of blindness from methyl alcohol have become so common that since the exhaustive report of Casey Wood and Buller[1] an ordinary case is hardly worth mentioning. The following case, however, has some unique features:

Case 1.—W. G., aged 46, jack-of-all-trades in a country town, came to me Nov. 9, 1905, with the following history: Two years ago, while working intermittently at painting, he spent three or four hours in a room, 16x14x8, the woodwork of which he decorated, first, with a stain which he mixed himself in the room, using wood alcohol freely as its main component, then using a shellac mixed with wood alcohol. He purposely closed the doors and windows extra tight to keep out dust. He finished about 4 p. m. and by 6 p. m. of the same afternoon he was absolutely blind. He could not see a ray of light. He was not nauseated nor sick in any other way. After a week of total blindness, perception of light began to return and improved so that after two or three weeks more he could read coarse print with a strong magnifying glass. Then a change for the worse set in gradually and continued until, after six months, he was practically blind again. He could see light, but for some weeks was entirely unable to guide himself in the brightest daylight. *Then another change for the better began.* Very gradually his sight improved and in the course of a year reached the point at about which he has since remained. He now can see the sidewalks so as to find his way about town quite readily. The treatment consisted mainly in hot eye baths and moderate doses of K. I.

Status Presens.—Medium-sized man in apparently perfect health except for his eyesight. Eyes normal, except that optic discs are markedly atrophic, with vessels small. R. E. counts fingers excentrically at six inches, L. E. counts fingers at one foot; field of R. E. gone, except for about one-third of the temporal half; of the L. E., the temporal half of the field, with about 10 degrees of the center, is gone.

The second improvement of vision in this case is perhaps its most remarkable feature. So far as I know in all cases hitherto reported the sight having once improved and then having got worse again it has never shown any further tendency to improve; and, while the man's final sight is, of course, nothing great, it is far better than any one would have been justified in predicting if he had been seen six months or so after his trouble began.

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* Read before the Omaha-Douglas County Medical Society, Feb. 27, 1906.

[1] Wood and Buller: Journ. Am. Med. Assn., 1904, Oct. 1, et seq.

Another unusual and important feature is that when, the day after he went blind, this man was examined by family physician, there was absolutely no patellar reflex on either side.[2] This point was tested repeatedly. In the course of the following months this reflex returned, just when the patient was not sure. And at the time of his visit to me it was quite normal. I must confess that in my other cases of methyl alcohol blindness I either did not test the knee-reflex or made no note of it if I did so. While I have found no notice of an affection of the reflexes in methyl alcohol poisoning, it is quite possible that it would have been found if it had been looked for. It is rather remarkable, on the whole, that so few cases have been reported in which the methyl alcohol seems to have affected other nerves than the optic nerve. In Wood and Buller's report I have found only the following: (1) Dr. Van Kirk's patient, p. 1062, man of 38 years, partial blindness, "patient was unsteady and apparently much worse when on land." (2) Murray's patient, p. 1060, "he became weak and somewhat inco-ordinate in his gait." (3) Dr. Welsh's patient, p. 1117, boy of 15 years, complete blindness, "very shaky and nervous, speech difficult, general muscular tremor."

In this connection, a case, some of the particulars of which have been kindly given me by Dr. S. K. Spalding, of Omaha, is of great interest. The patient was an Omaha photographer of about 32 years; for some time before his trouble began he had been spending quite a little time nearly every day cleaning glass plates with methyl alcohol in a small, poorly ventilated room. He was seized with paralysis of the arms and legs, with much difficulty in taking and digesting food, combined with intolerable pain in various parts of the body and marked decrease in sight. He died in great agony from inanition and exhaustion about three months after the onset of the trouble.

Of the eleven cases collected by Wood and Buller in which inhalation of the fumes was the probable cause of the trouble, eight (cases of Patillo, de Schweinitz, Ayers, Driver, Lippincott, North, and Wilson) were painters who, like my own patient, had been using varnish and shellac mixed with wood alcohol, and five of these men were engaged in shellacing the interior of beer vats, an occupation in which they certainly were bound to get all there was in it. With the other three patients it is uncertain whether amblyopia was due to the evaporated wood alcohol or to the formaldehyd produced in burning it.

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[2] This is the patient's statement. His physician writes me: "I kept no notes of the case, but I remember that at one time during his treatment the knee-jerk was almost entirely gone."

Finally, when we consider how many poor devils, especially if they are extra careful, are daily risking their sight by exposure to methyl alcohol, it seems as though the American Medical Association ought to do something in the way of prophylaxis. I am glad to say, even if the action produced no result, that the Nebraska Medical Society was the first organization to recommend placing methyl alcohol on the poison list.[3] Now, the ramifications of this deadly stuff are so extensive that nothing but national action can cope with the danger. I, therefore, move that the delegates of the Nebraska State Medical Society be instructed to introduce the following, or a similar, resolution at the next meeting of the American Medical Association:

> *Resolved*, That in view of the fact that methyl alcohol, otherwise known as wood alcohol, Columbian spirits, and by other names, is to many people an active poison, causing death or blindness, when drunk; or blindness even when its fumes are inhaled; and in view, further, of the fact that this alcohol is being used more and more in the arts, and in the adulteration of various flavoring extracts, and alleged medicines, and the cheaper brands of whisky, this Association urges upon Congress and the federal government the necessity of protecting the public by a rule or law, making it a penal offense to sell methyl alcohol, or any substance containing it, except in packages bearing the following label: "Poison: This package contains methyl alcohol, and if the contents are drunk or left open, or mixed openly or burned in a closed room, it may cause death or blindness." It is further ordered that the President of the American Medical Association appoint a committee of one or more to see that this resolution be brought to the attention of Congress and the federal government in a proper and efficient manner.

It may be objected that, as Wood suggests, the passage of a bill permitting the duty-free use of "denatured" ethyl alcohol (i. e. alcohol rendered repulsive to the taste by the addition of benzine or methylated spirits) will check the ravages of wood alcohol. But I am not so sure of this. In the first place we may never get such a bill. The one which has passed the house may never pass the senatorial annex of Standard Oil, and even if it does I can still see abundant opportunity for wood alcohol to go on with its deadly work. In fact, instead of lessening its use as a beverage it seems to me the increased use of denaturized ethyl alcohol in the arts would drive the wood-alcohol men to increase by all means the use of Columbian spirits in the manufacture of flavoring extracts, cologne spirits and cheap wines and whiskies. So I urge the passage of a bill requiring the "Poison" label on all methyl alcohol products, both as a substitute for the "denaturing" bill if we do not get the latter, and as a necssary adjuvant to it in case we do.

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[3] Trans. Nebraska State Medical Society, 1899.

NOTE ON FORMALDEHYD AMBLYOPIA.

The question of formaldehyd amblyopia as distinct from or perhaps a subspecies of methyl alcohol amblyopia was first raised in the report of a case which I sent to Dr. Wood and which was published on p. 1119 of his paper, and, as the matter has not received any adequate attention, I reproduce the report here.

The patient, a woman of about 35, came to me in the spring of 1902, complaining of gradual loss of sight for the past two weeks. I found the fundus of each eye normal, except for a slight pallor of the outer quadrant of each disc, which might easily be physiologic. V. 20/200, each eye, not improved by glasses. Outer limits of the fields normal, but the center of each field showed a large relative scotoma about 30 degrees in diameter, in the center of which the color sense was practically abolished. On being questioned about the possibility of methyl alcohol poisoning, she positively denied ever having drunk methyl or any other alcohol or any of the various commercial products which are apt to be adulterated by it; but she had been burning methyl alcohol in a lamp with a large, flat wick, for heating water in her room. Her custom for two or three months had been to light the lamp nearly every evening and allow it to burn out. This was during the winter season, in a small bedroom, without any other fire, so that it can easily be imagined that the ventilation must have been somewhat defective. Her vision began to improve almost immediately after I advised her to stop burning the methyl alcohol, when it gradually rose to 20/20 in the right eye and 20/70 in the left (the left had had convergent squint since childhood). It seems probable, therefore, that the amblyopia was due to the fumes of the methyl alcohol or to the formaldehyd generated in burning it. Considering the relative quantities of the substances which must have been present in the air of the room, it seems more likely to have been the formaldehyd.

In two other of Wood and Buller's cases it seems quite likely that the amblyopia was due to formaldehyd rather than to the methyl alcohol. These are (1) case of Dr. Conboy, p. 1118, woman, 58 years old, who used wood alcohol daily for several weeks to heat a "rheumatic bath" and as an application to the face and hair; vision reduced so that "a large parlor coal burner about ten feet distant was recognized by its outline only"; the disc of each eye showed atrophy in the temporal half and hyperemia and neuritis in the other half; vision at last examination 8/20 each eye. (2) Dr. Salmon's patient, p. 1119, infant, 6 months old; "parents noticed something wrong with the eyes and thought she could not see: pupils contracted; after dilatation optic discs were found to be pale, more so on the temporal side, and the arteries narrow. Parents said they had been burning a wood-alcohol lamp by the crib in which the infant slept; discontinued lamp, and child improved slowly; total recovery."

To these I can add a fourth case, though the details are decidedly meager. The patient was a boy of about 12, from a family of which some of the other children had had scarlet fever. As a prophylactic the parents had been burning formaldehyd pastilles freely in the children's apartments for about two weeks. At the end of this time this boy complained of his sight being poor, and the father brought him to my office, when I happened to be out of town. The vision of each eye was found to be 20/70 plus, not improved by glasses, optic nerves normal, no record of field. Use of the formaldehyd was stopped, and when I saw him about three weeks later his vision was practically normal and the fundus showed no decided abnormality.

These cases make it probable that there is a formaldehyde amblyopia with symptoms resembling the mildest sort of methyl-alcohol amblyopia; the onset being gradual and the prognosis good, if the source of the poisoning be cut off. It is of some importance, therefore, that the knowledge of this possibility be made public, both to warn people of the danger of burning methyl-alcohol and to suggest care in the use of formaldehyd as a disinfectant. It would not be a very difficult matter to test the effect of formaldehyd on the eyes of the lower animals, and I hope some one with more time than I seem to get will take up the subject from the experimental side.

Correspondence.

ON MEDICAL GRAFT.

To the Editors:—As a postscript to the excellent editorial on Commissions, Collusions and Conspiracies in the April RECORD, let me state that I am the Omaha oculist referred to in the optician's letter quoted therein, and, as for some years I have made a side specialty of fighting the commission evil in all its forms, I was somewhat surprised to be thus indirectly haled into court on such a charge. But since the question has come up I am glad of a fresh opportunity to state that I have never paid a commission to any optician nor to any other individual or corporation, and that I regard any one who gives or solicits such bribes as one of the most dangerous enemies of the medical profession. Furthermore, I know of no oculist in Omaha who does anything of the kind.

Omaha, Neb. H. GIFFORD.

Reviews.

RETINITIS PROLIFERANS.*

By Dr. Angelo Casali.

[Reviewed by W. Dudley Hall, M.D., Boston.]

Although the condition to-day known as retinitis proliferans was recognized as long ago as 1864 by Mackenzie in a patient suffering from oxyluria, considerable doubt still exists as to the etiologic factors which produce it. A few years later Becker noticed a connective tissue formation in the vitreous containing blood vessels more or less intimately associated with the vessels of the retina, due, in his opinion, to pre-existing hemorrhages in the vitreous, and still later Schnabel had a patient who had become blind over night, probably the result of vitreous hemorrhages, and who afterward presented the picture of hyperplastic hemorrhagic retinitis. About that same period several other observers published somewhat similar cases, and finally Manz, in 1876, gave clinical significance to a peculiar alteration, characterized by placques and white tendinous striæ, slightly raised above the ocular fundus, which, originating from the optic disc, followed the course of the vessels and was accompanied by hemorrhages and opacities of the vitreous, by calling it retinitis proliferans. Casali has recently studied a case of this sort in an individual of middle age, with a very poor family history, who had always been somewhat of an invalid from early youth. The eyes had never caused any anxiety until about ten years ago, when the vision of the left eye was accidentally found to be very poor (fingers). For eight years there were periods of improvement, followed by relapse, after which the condition remained stationary, the vision being about 5/30. About ten months ago there appeared before the right eye what seemed to be a web, with lateral prolongations, the vision becoming very poor, or about 0.02. The fundus of each eye presented a typical picture of retinitis proliferans, there being the shining white membrane partly covering the papilla and neighboring retina, elevated in places, irregular in outline and crossed by connective tissue bands, which in a way followed the course of the vessels. Hemorrhages, both large and small, were noticed along the vessels, some of which seemed to extend into the vitreous, and from the margins of the membrane web-like processes were seen in the vitreous fibrillæ, which had an undulatory motion corresponding to the movements of the eyes. During the two months that the patient was under observation it was possible to follow the process of transformation of an hemorrhage into a membrane having point of attachment to the wall of a vessel and otherwise floating freely in the vitreous.

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* Annali di Ottalmologia, xxxv, p. 19, 1906.

Manz, who had opportunity to examine an eye microscopically, that had undergone such an alteration, came to the conclusion that it was a connective tissue new formation, inflammatory in nature, and that the hemorrhages were merely incident thereto. Leber, however, who, during the following year, described some similar cases, was of a contrary opinion and considered the condition to be a connective tissue new formation, resulting from retinal hemorrhage. This difference in opinion has stimulated investigation, and both theories have earnest supporters. De Wecker offers an hypothesis, somewhat supported by clinical evidence, that the new formation may be due to large hemorrhagic extravasations coming from the optic nerve sheath, that have organized and become adherent to the papilla. Perinoff and Alexander, although they take into consideration the question of endocular hemorrhages as a factor in causing this hyperplasia, believe it to be secondary; according to the former, to interstitial retinitis, and to the latter, to exudate and vascular thrombi. Schleich and Pröbsting, in 1890, published three cases, with sketches of the fundus, in which the retinal hemorrhages had been present from the very first onset of the disease. Pröbsting's patient had also had albuminuric retinitis. Schleich's two cases are of considerable importance, as the observer had the opporunity to follow them along from the first appearance of the hemorrhage to the complete formation of connective tissue. Pflüger observed this form of retinitis in both eyes of a boy, aged 16, who had recurrent hemorrhages so profuse as to cause extensive retinal detachment. Both Speiser and Martinet have been led to favor the theory that this form of retinitis is the result of endocular hemorrhage. Banholtzer, who had examined an eye with the microscope seven months after injury causing hemorrhage, and in which absorption had gone far enough to permit a diagnosis of proliferating retinitis to be made, found considerable proliferating of the supporting fibers of the inner layer of the retina, and on account of the extreme rarity of this form of retinal inflammation as compared with the great frequency of intraocular hemorrhage, thinks it to be necessay to admit the coexistence of some condition, not yet well determined, of the heart or vascular system. Schultze has seen two cases of retinitis proliferans, one following optic neuritis, the other spontaneous vitreous and retinal hemorrhage. In von Hippel's case, published in 1892, it was not possible to demonstrate previous hemorrhage. Blessig's case was one of hemorrhage in one eye, although this could not be demonstrated in the other, in which retinitis proliferans was present. If they had previously existed they were undoubtedly secondary to deeply seated and persistent alterations in the vessel walls. Axenfeld, Chodin and several other writers are inclined to favor the theory of Leber. At the International Medical Congress, Rome, 1894, Goldzieher offered as a classification three forms of retinitis proliferans: a syphilitic form, which is perfectly curable; a traumatic form incident to intraocular hemorrhage, which is merely a plastic chorio-retinitis, and one of spontaneous origin, due to hyperplasia and hyaline degeneration of the internal limiting membrane of the retina, and as a result of the discussion, which was taken part in by Hirschberg, Cohn and others, it was thought proper to consider the true proliferating retinitis as resulting from hemorrhage into the retina and vitreous, and as it is newly formed connective tissue it is, therefore, incurable; that there is also syphilitic affection of the retina, resembling the proliferating form, which may be differentiated by its etiology, anatomic structure, and by its yielding to antisyphilitic remedies. Guilbaud defines the disease as a retino-hyalitis resulting from an aseptic irritation, the sufficient and essential agent of which he believes to be due to recurrent and abundant hemorrhages into the superficial layers of the retina and the vitreous, and the fact that they are not found should not preclude the possibility of their having previously existed. Schöbl and Markow hold the same opinion. Weeks recognizes Goldzieher's classification. Cirincione, in 1905, reported a case in which the hemorrhages were a complication rather than a cause, and states that the retinitis of Manz must be considered as due to irritating substances (chemical, toxic) in the vitreous, which act principally upon the adventitia of the vessels of the papilla, and that the anatomic foundation of this disease rests upon the new formation of fibrous tissues, which throws the retina into folds resembling cords, more or less raised, and sometimes projecting into the vitreous in the form of prolongations or membranes, and that the greatest amount of new tissue formation is at the optic papilla, about the great vessels and somewhat along the ramifications of the same. Dr. Mobilio, who has written quite recently on this subject, considers syphilis as an important causal factor, likewise intraocular hemorrhage.

From this review that Dr. Casali has made of the writings of the various authors who have had an opportunity to observe, both clinically and anatomically, cases of retinitis proliferans, it will be seen that intraocular hemorrhage is considered to be an important etiologic factor, although there are those who believe differently, and in consequence of this divergence in opinion it was thought worth the while to include in the list of similar cases one that had been carefully studied for three months and had been under observation at intervals from the onset. When this patient was seen by Guaita in 1895, although there were found in the left eye the remains of former hemorrhages in the vitreous, there was at that time nothing suggestive of retinitis proliferans; the relapses which occurred from time to time could be only attributed to endocular hemorrhage. At a later date both Bardelli and Guaita diagnosticated the condition as proliferating retinitis. At the time of this visit the right eye was perfectly healthy, when suddenly there appeared symptoms suggesting a large hemorrhage from the retina, and when the eye was examined later there were found remains of former hemorrhages, together with a typical proliferating retinitis, from which it seems impossible not to admit and recognize the close relation between these conditions. As regards the question already advanced by supporters of the theory of Manz, which might be brought up in the present instance, why it is that proliferating retinitis has not been observed after all hemorrhages, be they spontaneous, traumatic or concomitant with other disease, and why it is that, although these hemorrhages present different appearances and locations, it is certain that the condition itself is so characteristic that when once seen it can be mistaken for nothing else, and putting aside the too convenient reply of Schöbl that it is useless to demand it because the same questions might be asked in regard to other conditions, both general and local, without possibility of reply, and the seemingly too vague theory of Banholzer, who had recourse to the hypothetical existence of an abnormal heart or vascular system, and likewise that of Flemming, who rather favors the theory that toxic agents due to renal affections, diabetes and syphilis are the cause of the inflammatory process, the author is inclined to think that the reason should be sought for according to the manner that the hemorrhage presents itself. Hemorrhages in the nerve-fiber layer have a flame-like appearance with dentate margins, while those of the deeper layers are rounder, more sharply defined and smaller, although they may be confluent. Some of these absorb without leaving any trace; others remain as roundish, elongated pigment areas, and at times their site is replaced by shining white spots, somewhat pigmented. When in the vitreous they appear as dark-red masses, with lighter colored edges, or as a homogeneous mass. If the effusion is large, absorption will be correspondingly slow and the final result will be membranous formation in the vitreous, or if the clot becomes organized subsequent retraction may lead to retinal separation, or, according to some, retinitis proliferans. There is another form of hemorrhage less often met with and characterized by filaments or tufts of a dark-red color, attached to the papilla, but sometimes to the walls of the retinal vessels, which have an undulatory movement and which give rise to similarly behaving membranes. Their location, single point of attachment, with freely movable border, would rather suggest a possible cause. Although Casali will not absolutely deny the possibility of peripapillary hemorrhages, adherent to the disc, being due to apoplexy of the sheath, as suggested by De Wecker, he, personally, is convinced that there exists no direct evidence of communication between the intervaginal space and the intraocular cavity, especially as Leber, when injecting fluids into the nerve sheath, has always seen it arrested at the lamina cribrosa. As to the manner of formation of new tissues, it may be considered that the blood clot adherent to the disc or blood vessel sets up an inflammatory reaction, the cellular elements of the connective tissue of the vessel walls proliferate and the cells migrate to the hemorrhagic foci, while the more liquid part of the clot absorbs. By the organization of this cellular tissue might not a connective tissue formation, which characterizes the retinitis of Manz, be produced? The observation of Cirincione that this new-formed tissue is most abundant at the papilla and exclusively about the vessels; those of Rőmer, that the connective tissue which extends into the retina and vitreous proceeds from the adventitia of the blood vessels of the papilla, and the clinical fact that the whitish bands have their origin from the papilla, follow the course of the vessels and are lost upon them, seems to lend support to this method of formation, and it does not seem at all improbable that this newly formed tissue may extend into the rich reticulum of fibrin surrounding the vessels. Dr. Casali modestly disclaims any intention to generalize from an individual case; such material as he has had opportunity to examine has been so carefully studied and recorded with such attention to detail as to permit mention of only the more important clinical anatomic findings. Textbooks, as a rule, devote but little space to this interesting condition, consequently the general medical reader must have recourse to the larger treatises or monographs, of which the article by Schöbl in the Norris and Oliver System is to be recommended.

Reports of Societies.

SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting April 17, 1906, Dr. G. E. de Schweinitz, chairman, presiding.

UNUSUAL SUCCESS FROM IRIDOTOMY IN EYES PRACTICALLY BLIND FROM IRIDOCYCLITIS AND COMPLICATED CATARACT.

Dr. William Campbell Posey exhibited a female, aged 62, in whom vision was brought from 1/70 in the right eye and ½/70 in the left to 5/36 in both eyes by extensive iridotomies. The poor vision had resulted from iridocyclitis with pupillary occlusion and temporary cataracts. Both lenses were removed with iridectomies, but the pupillary area was so blocked by lymph and lenticular débris that vision was but little improved. Repeated needlings failed to obtain a clear area. The writer pointed out the advantages possessed by iridotomies performed with the De Wecker scissors over other forms of procedure in cases of this nature. He called attention to the importance of carefully studying the axis of greatest traction and the desirability of incising the iris in a direction at right angles to this. The incision should be large and any resulting reaction should be combated with ice compresses, boric acid and atropin solutions, and the administration of soda internally. He said that De Wecker performed the operation after either one of two methods, that of irito-ectomy or irito-dialysis, and gave the details of both of these procedures.

V-SHAPED IRIDOTOMY: KNIFE-NEEDLE VS. SCISSORS.

Dr. S. Lewis Ziegler presented a brief historical review of the various methods of iridotomy proposed during the past two hundred years. This showed a constant oscillation from incision of the iris membrane by the knife-needle to excision of the same by the scissors through the open corneal wound. While all preferred the knife-needle, many were forced by frequent failures to adopt the scissors. Cheselden, the father of iridotomy, originated the method of incision by the knife-needle, which Adams later revived and improved. von Graefe set the seal of his approval on the knife-needle method as being superior to all others. On the other hand, Janin first devised the method of using scissors through a corneal wound, while Maunoir later made a triangular flap, which procedure De Wecker elaborated and perfected until it stands to-day as the best recognized method.

Iridotomy is now confined to cases of aphakia in which cyclitis and iridochoroiditis have resulted in membranous occlusion of the pupil. In such cases the knife-needle has the following advantages: ease of incision, lack of traction on the ciliary body, less subsequent inflammation, no loss of fluid vitreous, and avoidance of a scar from corneal incision. There are several essentials of success: (1) a good knife-needle, preferably a modified Hays knife-needle, (2) a V-shaped incision, and (3) skillful manipulation of the knife-needle to avoid escape of aqueous, to make no pressure in cutting, and to place the corneal puncture and membrane counter-puncture as far apart as possible.

The writer's method consists of puncturing the cornea above, passing across the anterior chamber, swinging the knife 2 mm. to the left of the vertical plane, making a counter puncture in the iris membrane by a dart-like thrust, and without pressure making a saw-like motion until the knife reaches the apex of a supposed triangle. As this opens up, the knife is swung up through the opening, and passed across the anterior chamber to a point 3 mm. to the right of the vertical plane, where counter-puncture is again made, and a similar incision executed up to the apex of the triangle, thus forming a V-shaped incision. The knife is then quickly withdrawn. The resulting pupil should be either triangular or oval, depending upon the resiliency of the tissues. This procedure has been in constant use for the past seventeen years, and has proved efficient in more than 90 per cent. of all cases. It is equally applicable to simple cases of secondary capsular cataract, or to mixed cases of irido-capsulotomy.

Dr. Hansell said that the operation which he had found to be the most successful, in cases in which the pupil was drawn upward, was an incision near the lower corneal margin, through which Tyrrell's hook was introduced. The iris was caught with this, and drawn downward, tearing an opening in the occluding membrane.

Dr. de Schweinitz stated that he believed the condition of the iris should largely decide which one of the various operations described should be employed. When the iris was in good condition and the pupil central and excluded by exudate, to which also the posterior surface of the iris was more or less adherent, he believed it wise first to perform an iridectomy, and subsequently cut the exposed membrane, the exact character of which could be explored at the time of the operation, either with a very narrow Graefe cataract knife, or in the usual manner with De Wecker's scissors after puncture and incision of the membrane with a narrow keratome. In most instances he believed it better to cut out a triangular portion of the membrane rather than make a simple incision across the tensest portion of the fibers. In some cases, however, such simple incisions, especially if performed with a sharp Graefe knife, were singularly effectual. He described and discussed Dr. Knapp's operation of iridocystectomy, which, following that distinguished surgeon's directions, he had at one time performed, and in some instances with great satisfaction. He had in recent years, however, abandoned it for the procedure already noted. If the iris is drawn up into the angle of the wound, distorted and atrophic, and presents little hope of being satisfactorily removed in the performance of an iridectomy, he would have recourse at once to De Wecker's iritoectomy, which has already been described in Dr. Posey's paper.

He did not doubt that Dr. Ziegler's V-shaped iridotomy, performed with a modified Hays knife-needle, was equally efficacious, although he had himself not practiced the operation. He had seen it performed by Dr. Ziegler with great success.

Dr. de Schweinitz also referred to certain types of complicated cataract, especially such as followed sympathetic iridocyclitis, in which the drilling operation, usually called Critchett's operation, yielded, he thought, better results than any other operative procedure, and referred to one or two notable successes which he had achieved with this method.

In closing, Dr. Posey said that in cases of pupillary occlusion he preferred the incision with scissors where it was a question of opening the pupil through the iris, whereas he thought that the knife-needle was better adapted to cases where the capsule itself must be incised. He had had most excellent results follow iridotomy with De Wecker's scissors in other cases, particularly in the not uncommon type where a small pupil remained near the limbus above after complicated healing in cataract operations. In this class of cases a large incision across the iris usually gives most excellent vision.

Dr. Ziegler, in conclusion, said that he had frequently seen De Wecker perform his operation most skillfully, but that he occasionally lost considerable vitreous, which he considered very dangerous in certain cases. He had also seen Galezowski operate, but his incision was a crucial one instead of the T which his book describes, thus following the practice of Guerin. The condition referred to by Dr. de Schweinitz, where the pupil is drawn up to the top of the anterior chamber, was the exact type of a case this operation had first been performed upon with success, the visual result being 20/50. The second successful case was that described in the paper, where various methods had previously failed because of a tough membrane and a tension of —3. In reply to Dr. Posey's remarks, he would say that while De Wecker's method was very successful in the case exhibited, the mere fact that there was a soft iris membrane was not at all a contraindication of this V-shaped method with the knife-needle. He had recently operated on several similar cases, which he hoped to show in the near future.

Dr. William T. Shoemaker showed (*a*) *A Case of Choroidoretinal Sclerosis with Spontaneous Dislocation of the Lenses, Partial and Complete.* The underlying pathologic conditions in this case were degeneration, atrophy, and sclerosis, affecting the retina, the choroid, the optic nerve, and the crystalline lens with its suspensory ligament. In the right eye the lens was cataractous and partially dislocated, in the left eye the lens was free in its capsule in the floor of the vitreous.

The fundus of the left eye was a most striking example of degeneration. The essential points were, complete atrophy of the nerve, the vessels were reduced to lines, the reduction apparently being due not to a diminished lumen alone, but to an actual reduction of the vessel in all its parts. Pigment was of several varieties, i. e., retinal pigment, wandering and forming grotesque figures, and pigment gathered in masses, some round and some irregular, in different parts of the retina. Little is known of the changes which take place in the suspensory ligament in cases of this kind, but it may be supposed to fall a victim of the general starvation; to relax, to become attenuated, and to fail in function.

Dr. Shoemaker calls attention to the statement of Camill Hirsh, that pigment in the retina can come but from four sources: viz., first, from the pigment layer of the retina; second, from the chorioid; third, from the blood, and, fourth, from iron introduced into the eyeball—siderosis.

Insomuch as the normality of the pigment layer of the retina depends upon the chorioidal circulation, and is not influenced by disturbance in the retinal circulation alone, all cases of acquired pigment in the retina, not due to traumatism, hemorrhage, or siderosis, should have the double descriptive title of chorioido-retinal. The name of pigment degeneration or atrophy of the retina, while much better than that of retinitis pigmentosa, is still defective in that no credit is given to the chorioid, which probably plays an important, if not an indispensable, rôle in this distinctly degenerative and sclerotic process.

(*b*) *Persistent Hyaloid Artery, Both Eyes—Unusual Variety, Left Eye.*—The persistent hyaloid in the right eye was of the most usual form, i. e., attached to the disk, with free end in the vitreous. In the left eye the anomaly was of a most unusual variety, and, so far as the author knows, one not previously noted. The neural end of the artery and its sheath had entirely disappeared, as well as the lenticular end, with the exception of three or four very fine strands of the vascular tunic of the lens, which remained apparently attached above to the ciliary processes, and at the other end to a good-sized remaining section of the artery. This section of hyaloid, therefore, lay longitudinally in the vitreous a little below the axis, with its free end directed backward, and its forward extremity suspended from the ciliary processes by three or four remaining strands of the vascular tunic of the lens. No opacities remained in the posterior lens capsule.

Dr. de Schweinitz said that he had examined Dr. Shoemaker's second case, and that it was unique, so far as he knew. No similar case is noted in de Beck's monograph.

A CASE OF VESICULAR KERATITIS, WITH A FILAMENTOUS FORMATION OF THE DETACHED EPITHELIUM.

Dr. Burton Chance described a case the features of which were as follows: A young woman received a slight injury to the cornea, which caused the appearance of a large epithelial bleb. This burst, and exposed the true cornea, and loosened the surrounding epithelium. Several days later a faint diffuse edema, with an irregular track of infiltration was noticed. For many days it was impossible to reapply the loosened epithelium, and when at last the surface was covered the cornea became studded with over thirty tiny vesicles. In the course of a day or two these vesicles burst, and instead of being cast off from the cornea, their walls remained attached by narrow pedicles, which by the action of the eyelids were moulded into scrolls or filaments which were ultimately torn off. No signs of infection of the true cornea were observed during the evolution and involution of the vesicles. The eruption of vesicles was repeated several times during a period of several weeks.

Various plans of treatment were pursued without avail, until all of the filaments were scraped off, and pure tincture of iodin was applied to the surface of the cornea. The patient was kept in bed for two weeks. The cornea has now a healthy appearance, and the vision is only slightly reduced. The exfoliated fragments were composed only of degenerated epithelial cells.

Dr. Chance believed the condition to have been one of neuropathic disease of the cornea, in association with a lithemic or rheumatic diathesis—somewhat of the order of herpes, involving at first a single locality. Because of a great loss of the protecting epithelium, a general edema of the cornea was excited. The loosened epithelium hindered the steady onward flow of the serous fluid. so that it escaped from the lamina, and was held beneath the epithelium in the form of droplets.

Dr. Zentmayer said that Dr. Chance's case presents clinically a picture which superficially resembles filamentous keratitis, but pathologically is quite a different affection. In cases of herpes the filament is purely a mechanical product resulting from the whipping of the denuded epithelium into threads, whereas in filamentous keratitis the filament is due to a diseased state of the corneal epithelium, as a result of which the epithelium becomes elevated as a cone, the cells and their contained nuclei greatly lengthening and twisting, the resulting fiber often terminating in a globule made up of cell detritus. He believed the treatment which had cured the case of herpes would aggravate a case of filamentous keratitis, as he had found that mild astringents, especially weak solutions of ammonium chlorid, were the most efficient measures in the treatment of the latter disease.

Dr. Carpenter believed that the patient had suffered from an unusual form of herpetic keratitis. He was, at the present time, treating a woman, aged 46, with recurring crops of herpetic vesicles scattered over the cornea, rupturing in 24 to 48 hours, but leaving no shred-like epithelial processes, such as were present in Dr. Chance's patient. The etiology was plain, as the malarial plasmodium was found in the blood and the patient was suffering from chronic malarial poisoning. The attacks were usually cut short by large doses of quinin.

In conclusion, Dr. Chance said that he did not consider the case one of filamentous keratitis, but thought that the formation of the filaments in the herpes blisters was unusual. Mild measures had had no effect.

Dr. William Zentmayer presented a patient with unilateral exophthalmos of traumatic origin. The patient was an Italian, 27 years of age, with an exceptionally good personal and family history. On Nov. 21, 1905, the left eye suddenly proptosed, and since then there has been little change, unless slightly for the better. One month previously, while helping lift a very heavy beam, the weight was suddenly thrown upon him, giving him a severe strain. The proptosis is very marked. The eyeball is practicallly fixed, the sixth nerve being completely paralyzed. The conjunctival vessels are greatly engorged. There is a soft mass below the upper margin of the orbit which is most marked at the inner angle. There is neither bruit nor pulsation and the eyeball can not be replaced into the orbit. The edges of the nerve-head are hazy and the veins are much distended. In the other eye the nerve-head and surrounding retina are greatly swollen and there are profuse retinal hemorrhages (thrombosis of the central vein). There was no disease of the accessory sinuses and the Roentgen rays showed no shadow behind the eyeball. Dr. Zentmayer said that he believed the condition to be due to a small rupture of the carotid within the cavernous sinus, resulting in a thrombosis which has extended to the cavernous sinus of the other side. The result of tying the carotid artery would be questionable, but would be advised as at least a preliminary step to the method of Sattler for treating such cases.

Dr. de Schweinitz thought the case did not present the most favorable features for ligation of the common carotid, and that, while ordinarily this operation is to be recommended, in the present instance it might be worth while to try the effect of the recumbent posture, compression of the carotid artery, and the administration of large doses of iodid of potassium.

Dr. John T. Carpenter showed the patient and described the fundus of a young man who was thrown from an automobile, striking his head. The ophthalmoscope showed about six irregularly shaped areas of retinal exudate, yellowish-white in color, with woolly edges. There were also superficial retinal hemorrhages, slight obscuration of the nerve-edges, and moderate swelling of the disc. The picture was strongly suggestive of albuminuric retinitis. Vision was reduced to 1/60, but was improving under treatment with mercury, the iodids, atropin and rest.

TRAUMATIC OPHTHALMOPLEGIA.

Dr. de Schweinitz described the following case: A young man, aged about 20, was injured by a log 9 feet long and 22 inches in diameter, which rolled over him. He was unconscious for three hours. No fracture was demonstrated, either of the skull, the trunk, or the extremities. Two weeks later he was examined in the University Hospital and complete external ophthalmoplegia found without paralysis of accommodation, while on the right side there was complete paralysis of the abducens, with marked paresis of accommodation. In addition there was a moderate bilateral optic neuritis. At first there was some mental confusion and a slight febrile reaction, which rapidly disappeared under treatment, and when the patient left the hospital his general condition was good, although there was little or no change in the ocular muscle conditions.

Dr. de Schweinitz discussed at some length the possible causes of such palsies, which might be due to fracture of the skull, to hemorrhage, to pressure of exudates at the base of the brain, and, finally, to hemorrhage or concussion of the nuclei of the ocular muscles in the aqueduct of Sylvius. He thought in the present case that hemorrhage into the nuclei themselves explained the left complete ophthalmoplegia, while the right abducens might readily have been injured by the fracture, or pressed upon by the exudates of a meningitis or by hemorrhage, which in turn would account for the neuritis.

Dr. de Schweinitz also exhibited a patient who, immediately following the blow of a fist upon his right eye, had complete paralysis of the right internal rectus and paresis of the right external rectus. Crossed diplopia characteristic of internal rectus palsy existed in all portions of the field of fixation, except in the extreme outer portion of the right field, where the diplopia immediately became homonymous and characteristic of external rectus palsy. The blow of the fist had probably produced a hemorrhage which had so distributed itself as to press upon the two involved nerves. There were no ophthalmoscopic lesions except some edema of the macula, and no paresis of accommodation.

Dr. Carpenter related the history of a boy who had received a severe blow on the head followed by symptoms of traumatic meningitis. There was at first spasmodic convergence followed by neuritis with bilateral palsies involving principally the sixth and the third cranial nerves. Under mercury and iodids the patient made a complete recovery.

An Ocular Transilluminator was shown by Dr. Ziegler. This instrument was devised by Würdemann, and consists of a miniature electric lamp of 5½ volts having a small but powerful condensing lens on the end of the bulb. As it is made by The De Zeng-Standard Co., of Philadelphia, it can be mounted in the hard-rubber handle of the De Zeng luminous ophthalmoscope. Attached to this is a hard-rubber tip containing a cylindrical glass rod three-quarters of an inch in length and 5 mm. in diameter, which is ground and polished flat at both ends, the inner end being held in contact with the condensing lens on the end of the lamp bulb. All of the light entering the glass rod or conductor at an angle of approximately 90 degrees is transmitted by the rod to the object, the principle employed being that of total reflection. The tip is so small that the light can easily be transmitted through the ocular tissues, and the illumination is so great that it is possible to see the details of the fundus with the naked eye. The instrument is smaller, handier and more efficient than the larger instruments of Sachs, Lener and Rochon-Duvigneaud. As the lamp and rod are practically cold there is no danger of heating the eye.

Dr. Edward A. Shumway presented a case of marginal ulcer of the cornea, occurring during an attack of diplobacillus conjunctivitis. Unlike many of the cases reported last year by Paul and Erdmann, there was no associated iritis or hypopyon. The ulcer was progressing favorably under treatment with mild measures, including the use of a zinc solution as collyrium.

EDWARD A. SHUMWAY, M.D., *Clerk of Section.*

DETROIT OPHTHALMOLOGICAL AND OTOLOGICAL CLUB.

The regular monthly meeting of the club was held at the Hotel Ste. Claire, Tuesday evening, April 3, 1906, with the president for the evening, Dr. W. R. Parker, in the chair.

The paper of the evening on "Tubercular Affections of the Eye" was read by Dr. Parker.

In opening the discussion on this paper, Dr. Eugene Smith reported an unpublished case of his of primary tubercles of the cornea. The patient was a woman, 44 years of age, who was first seen in 1901. Aside from her eye condition she seemed in perfect health and gave no indication of tuberculosis elsewhere. The eye had been troubling her for the past nine months, but only became painful in the past three months, when glaucomatous tension set in. Three distinct nodules, apparently on the posterior surface of the cornea, could be made out, and the case was considered one of endothelioma of the cornea, and enucleation of the eye was advised and accepted. On section, however, these nodules were found to be typical tubercles. Microphotographs of the condition were shown. The woman has never developed any other signs of tuberculosis and is still alive and well.

Dr. Leartus Connor reported having seen several cases in which enucleation had been advised under the supposition that the condition was one of tuberculosis of the cornea, but which got well under the administration of iodid of potassium. We all know, however, that tuberculosis in other parts of the body gets well and it is not impossible that some of these cases were tubercular. As regards other interstitial forms of keratitis, his attention was called to rheumatism as an etiologic factor by the case of an old soldier whose cornea sloughed off and no other cause could be found. The pension department finally recognized rheumatism as a cause of keratitis. In another case of acute rheumatism, the cornea became almost white, but cleared up under large doses of salicylate of soda.

Dr. Maire thinks that, considering the great frequency with which we find tuberculosis elsewhere and its rarity in the eye, that organ must be peculiarly resistant to the infection. He does not think these cases are overlooked or get well on other treatment. These eyes should be enucleated.

Dr. Renaud reported a case which he diagnosed as trachoma at the time, but now thinks was tuberculosis of the conjunctiva. Blue stone had little effect on the condition and he was compelled to excise a part of the papillomatous tissue.

Dr. Campbell said he had seen several cases which clinically looked like Dr. Parker's case, but had not been able to make the diagnosis positive.

Dr. Gillman reported seeing a case of tuberculosis of the iris, but had never seen one of the cornea.

RAY CONNOR, *Secretary.*

CHICAGO OPHTHALMOLOGICAL SOCIETY.

May 8, 1906.

DR. G. F. FISKE, President.

DIONIN IN OLD CORNEAL OPACITIES.

By Drs. C. W. Hawley and M. Z. Albro. The writers reported four cases of old corneal opacities and infiltrates markedly cleared by long continued use of 2 to 10 per cent. solutions of dionin.

CASES 1 AND 2.—Mother and son, respectively, had 5 mm. and larger, prominent, white opacities; only one small opaque point at the present time can be seen in the boy's cornea, and one must use a lens to discover any infiltrate whatever in the mother's cornea.

CASE 3.—Had a very dense 2x3 mm. scar, evidently due to extensive ulceration, and a narrow band of infiltration in addition to general opacity, almost entirely hiding the iris; under treatment a 3 mm. marginal zone has appeared through which the iris is plainly visible and the denser scar is much smaller and thinner.

CASE 4.—Is a leukoma existing from childhood and is gradually disappearing under treatment.

Discussion. Dr. Oscar Dodd compared the results to be obtained from the use of dionin in one eye and jequiritol in the other; in his experience the latter gives the better results in inflammatory conditions and the former in the non-inflamed opacities, although dionin seems to work better in mild inflammatory conditions; in opacities due to corneal ulceration he has obtained very little benefit from jequiritol.

Dr. W. E. Coleman has found that the eye becomes tolerant to dionin after five or more days of use; galvanization before its use increases iridocyclitis with rapid clearing of the cornea.

In the case of a child, 6 months old, whose cornea was injured during a forceps delivery, he used dionin faithfully for six months without any effect whatever.

Dr. Hawley had obtained no favorable results in these cases either from the use of yellow oxid of mercury and massage or electricity; his results had been obtained exclusively with dionin.

Dr. J. Elliott Colburn reported the case of a woman, aged 32, who had a large central opacity following ulcer of the cornea that occurred during an attack of smallpox when the patient was 6 years of age. It was quite dense, but the curvature of the cornea was symmetrical. He used dionin for about two months without any perceptible clearing of the cornea. Having read in some journal that the cornea would clear more rapidly when the opacity is somewhat recent, it occurred to him that he might create a more recent condition. So he applied electrolysis, searing the entire surface of the corneal scar. After the condition had passed the acute stage, he used dionin with the result that the patient acquired about 20/40 vision within four or five months.

AFFECTIONS OF THE FRONTAL SINUS AND ANTERIOR ETHMOIDAL CELLS MANIFESTING PURELY OCULAR SYMPTOMS.

Membership thesis by Dr. F. E. Brawley. The writer gave a detailed report of 8 cases in point along with an extended review and valuation of the literature upon the subject, and summarized his study as follows:

1. Periodical attacks of unilateral headache where the pain begins about one eye and is accompanied by inability to use the eye during the attack are practically always of nasal origin, involving the frontal and ethmoidal sinuses and usually non-suppurative in type.

2. The condition is best explained by supposing that turgescence of the middle turbinal of the affected side causes an imprisonment of the air in the frontal and anterior ethmoidal cells by blocking their exits into the nose. Absorption of the contained oxygen by the lining membrane of the cells brings about a vacuum, congestion and swelling of the membrane follow, producing irritation of the contained nerve endings, branches of the ophthalmic division of the fifth nerve with resulting reflex ocular disturbances. An active con-

gestion occurs also in the orbital tissues as a result of the blocking of the branches of the ophthalmic artery which supply the lining membrane of these cells

3. The application of adrenalin to the affected middle turbinal is a specific means of diagnosis of this condition by re-establishing air communication between nose and sinuses with resulting relief of subjective symptoms.

4. A specific treatment is the resection of the anterior third of the affected middle turbinal with consequent exposure of the exits from these sinuses and permanent relief from the subjective symptoms. (See OPHTHALMIC RECORD for complete article.)

Dr. N. M. Black, Milwaukee, reported two cases similar to those cited by Dr. Brawley.[1]

Dr. Brown Pusey directed attention to the fact that relief might have been afforded these patients merely by the bleeding from the turbinates, as this has been known to occur quite frequently.

Dr. F. A. Phillips stated that it must not be forgotten that there exists a relationship between lowered vision and hysteria, and that it is necessary to take the fields and make other observations in these cases before hysteria is excluded. The relief that is afforded from the simple application of adrenalin is easily accounted for in the class of cases known as the hysterical amblyopias and asthenopias. He thought that Dr. Black's cases went through the typical cycle of hysterical manifestations. There was no original disturbance to account for the symptoms present, simply a functional disturbance hysterical in character.

Discussion of Dr. Brawley's Paper.—Dr. Black replied that on examination of the fundi of his patients nothing abnormal was found, except when the electric ophthalmoscope was used, when he clearly saw a peculiar punctate condition about the macular region, fine yellow spots, fifty or sixty of them, extending over an area about the size of the disc. These spots had disappeared entirely after the vision had become normal.

Dr. Brawley agreed with Dr. Phillips as to the necessity of making more careful and thorough examinations of the fundi and eyegrounds of this class of cases. He was not ready to believe that these cases were hysterical amblyopias. In his own case the symptoms were always the same and the results obtained from treatment were always identical. His symptoms were exactly the same as those experienced by the patients whose histories he reported.

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[1] See N. Y. Med. Jour., June 2, 1906.

FRAGMENT OF STEEL IN THE EYE.

Dr. Wm. H. Wilder reported the case of a young man who was working with a hammer and cold chisel when a piece of steel flew into the left eye. There seemed to be some irritation of the lid and a small wound about one and a half millimeters in length was seen just within the limbus at the nasal side. Examination of the fundus revealed a scar or track in the inferior temporal quadrant of the chorioid at the end of which was a black object, apparently a little mass of pigment which at that time was supposed to be a foreign body. A little blood vessel ran across this track. With the large magnet the piece of steel was brought up to the wound, but could not be extracted until after the wound had been enlarged slightly with Knapp's discission knife; then the metal could not be entirely withdrawn with the Hirschberg magnet because when the tip of the magnet was withdrawn, the foreign body was stripped off. With the large magnet, the fragment was, however, easily withdrawn. Recovery has been uneventful and without reaction; the media was perfectly clear, and the object in the chorioid which was mistaken for a foreign body can still be seen; vision has returned to normal.

ANOTHER SUCCESSFUL MAGNET OPERATION WITH AN UNUSUAL TERMINATION.

Dr. H. B. Young, Burlington, Iowa.—The patient presented a 6 mm. penetrating corneal wound caused by a piece of steel striking the eye an hour before; a tag of iris incarceration was removed and a piece of steel 6 by 5 mm. in size removed; then an enlarged incision by the Haab magnet after failure with the hand magnet. The wound healed promptly, although some iritis supervened. The eye was quiet a month later with qualitative vision and doubtful light perception; the tension was distinctly lowered, though there was no ciliary tenderness. A week later the patient suddenly became wildly excited, then maniacal, incoherent, and finally oblivious to his surroundings, died on the sixth day apparently from exhaustion. At autopsy the cavities of the skull, thorax and abdomen were opened and the contents found macroscopically normal. The eye, with a section of the nerve, was removed and given to Dr Brown Pusey for further study.

A BACTERIOLOGIC STUDY OF FIFTY CASES OF CONJUNCTIVITIS FOUND IN CHICAGO DURING THE PAST YEAR.

Dr. Brown Pusey reported the results of some work done in Chicago during the last year on the bacteriology of the normal and diseased conjunctiva. He finds the Gram positive bacillus of the group pseudodiphtheria or xerosis almost constantly present in the conjunctival sac. He has not seen a case where this organism could have been considered the pathogenic agent. Staphylococci are very frequently found in the conjunctival sac; in Chicago one seldom makes a smear or a culture from the conjunctival sac without finding staphylococci. He has found staphylococci where no inflammatory symptoms existed and in cases of conjunctivitis where there was little question that this organism was the pathogenic agent. The organism most frequently found as the cause of acute conjunctivitis in Chicago is the pneumococcus. Dr. Pusey has found 12 such cases in the year. These cases were sporadic; so far as he knows there has been no epidemic from this organism in Chicago during the time. He had four cases of acute conjunctivitis caused by the influenza bacillus; three of these cases were in one family, and recovered in three or four days without treatment. He has had in this time three cases of gonorrheal infection of the eye. One of these cases was in an elderly woman, and the mild character of the inflammatory reaction was remarkable. He found infection of the conjunctival sac by the diplobacillus of Morax-Axenfeld in eleven cases. Seven of these were cases of chronic conjunctivitis, three were cases of acute conjunctivitis, and in one there were no symptoms. He has been actively on the lookout for the Koch-Week's bacillus, but has not seen it in Chicago.

In concluding, he called attention to the facts that the pneumococcus appears to be the most frequent cause of acute conjunctivitis in Chicago, and that the diplobacillus of Morax-Axenfeld is the most frequent known infectious agent giving rise to chronic conjunctivitis. He emphasized one point brought out prominently by his series of cases, namely, that one must be most careful about venturing an opinion regarding the nature of the infectious agent from the clinical findings; in his cases he had a severe case of acute conjunctivitis caused by the Morax-Axenfeld diplobacillus and a case with very slight reaction caused by the gonococcus.

DR. E. V. L. BROWN, *Secretary.*

Notes and News.

THE honorary degree of LL.D. has been conferred upon Dr. Frank Allport, of Chicago, by Notre Dame University, of Notre Dame, Indiana.

DR. CASEY WOOD was elected President of the American Academy of Medicine at its recent meeting in Boston, and was subsequently granted the *ad eundem* degress of M.D., C.M. by McGill University, Canada, for "services to medical science."

DR. BOERNE BETTMAN died at Chicago, May 25, 1906. He was born in Cincinnati, Sept. 6, 1856; graduated at Miama Medical College, Cincinnati, 1878. After spending two years at the eye and ear clinics in Paris and Vienna, he began the practice of his profession in Chicago, in 1881. Dr. Bettman was one of the most prominent oculists of Chicago and was well known to the profession of this country. About two years ago he was attacked with multiple sclerosis of the brain and spinal cord and since that has been a helpless invalid. He has been Professor of Ophthalmology at the College of Physicians and Surgeons and the Post Graduate Medical School, of Chicago; surgeon to the Illinois Eye and Ear Infirmary and President of the Illinois State Board of Charities.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

Meeting to be held at Detroit, Aug. 30, 31 and Sept. 1, 1906.

OPHTHALMIC SECTION.

The following is a partial list of the papers to be read at the Detroit meeting Aug. 30, 31 and Sept. 1, 1906:

Wm. F. Mittendorf, New York, N. Y.—Punctate Opacities of the Posterior Lens Capsule.

Alvin A. Hubbell, Buffalo, N. Y.—Spontaneous Dislocation of Both Crystalline Lenses in Two Members of the Same Family.

Lucien Howe, Buffalo, N. Y.—Note on How to Obtain Reliable Replies by Letter from Patient.

Walter R. Parker, Detroit, Mich.—Exclusion of Hypermetropes from Railroad Service.

T. A. Woodruff, Chicago, Ill.—Irrigation of the Anterior Chamber in Cataract Extraction.

John F. Byington, Battle Creek, Mich.—Melanosarcoma of the Chorioid, with Report of Case Operated On Before the Glaucomatous Stage.

O. B. Monosmith, Lorain, Ohio.—A New Method of Enucleating the Eyeball.

Homer E. Smith, Norwich, N. Y.—Cataract Extraction, with Preliminary Capsulotomy.

Eugene Richard Lewis, Dubuque, Iowa.—Suggestions for Americans Contemplating Postgraduate Ophthalmologic Study in Europe.

George F. Keiper, Lafayette, Ind.—Occlusion of Branch of Central Artery of Retina.

Randolph Brunson, Hot Springs, Ark.—Syphilitic Disease of Optic Nerve.

D. Emmett Welsh, Grand Rapids, Mich.—Report of Case. Embolism of the Central Artery of the Retina.

Wm. Evans Bruner, Cleveland, Ohio.—Acute Retrobulbar Neuritis.

L. Webster Fox, Philadelphia, Pa.—The Value of High Frequency Current in Ophthalmic Practice.

L. W. Dean, Iowa City, Iowa.—Title not received.

James Moores Ball, St. Louis, Mo.—The First American Ophthalmic Text-Book—The Work of George Frick, of Baltimore.

Wm. M. Sweet, Philadelphia, Pa.—Comparative Studies of the Visual Fields as Determined with Electric and Reflected Light. Exhibition of Improved Electric Light Perimeter.

Howard J. Hansell, Philadelphia, Pa.—The Treatment of Myopia.

Lee Masten Francis, Buffalo, N. Y.—Treatment of Acute Dachryocystitis.

T. W. Moore, Huntington, W. Va.—Changes in Curvature of Cornea Produced by Chalazions.

H. V. Würdemann, Milwaukee, Wis.—Massage and Electricity in Treatment of Atrophy of the Optic Nerve and Retina.

Albert Rufus Baker, Cleveland, Ohio.—A Statistical Inquiry as to the Relief and Cure of Migraine by the Correction of Errors of Refraction.

George M. Case, Elmira, N. Y.—Eyestrain and Crime.

Oration on Ophthalmology by Mr. R. Marcus Gunn, London, Eng.—"Ailments of the Optic Nerve."

Address on Ophthalmology by Dr. Casey A. Wood, Chicago, Ill.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, JULY, 1906. VOL. XV. NO. 7, NEW SERIES.

Original Articles.

TUBERCULAR AFFECTIONS OF THE EYE.*

WALTER R. PARKER, M.D.
Professor of Ophthalmology, University of Michigan.
DETROIT.

(Illustrated.)

The comparative infrequency of tubercular conditions as a recognized cause of ocular affections has led me to believe that a review of the subject, together with a report of a case of tubercular keratitis, might be of interest to the club.

CONJUNCTIVA.

Tubercle of the conjunctiva is probably not so rare as has been thought; 1 in 6,000 ophthalmic cases (Hirschberg, 1881), 1 in 30,000 mules, 1885; 1 in 2,700, Eyres, 1900 (Parson). Sattler distinguished five groups of cases, as follows:

1. Characterized by the presence of one or more small miliary ulcers, which usually caseate and may or may not coalesce. These generally attack the palpebral in preference to the bulbar conjunctiva.

2. Characterized by the presence of grayish or yellowish subconjunctival nodules, varying in size, but rarely larger than hemp seed.

3. Characterized by the presence of florid hypertrophied papillæ and rounded, flattened-out growths of granulation tissue, sometimes derived from tarsal conjunctiva, but usually springing from the fornices and are associated with edema and thickening of the lids. Sections of the hypertrophied papillæ show, as a rule, nothing but masses of small round cells, with occasional large polygonal cells. Tubercle bacilli are usually scattered, but very sparsely, throughout the tissue and are found with difficulty.

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* Read before the Detroit Ophthalmic and Otologic Club.

4. Characterized by the presence of numerous pedunculated cockscomb excrescence in the fornices of jelly-like consistence, often showing superficial ulceration.

5. Characterized by the presence of a distinctly pedunculated tumor, having the microscopic appearances of a papilloma. Tubercle bacilli may be found in and around the growth. It is sometimes difficult to distinguish between the groups. Bacilli are, as a rule, few. The only absolutely reliable test is inoculation into a rabbit's anterior chamber, which is followed in a few weeks by tubercular nodules upon the iris.

Many cases are treated for trachoma. Pannus of the cornea may occur in several of the groups and adds much to the difficulty of diagnosis in the trachoma-like cases. P. 1-81. It seems difficult to say whether the conjunctival affection is primary or secondary. While secondary cases have been seen in cases of lupus, in many of the cases reported the patients have been quite healthy, or at any rate suffering from no demonstrable tubercular affection.

Eyre and others have stated that the disease shows no spontaneous tendency to recovery, while others, and the majority, claim good results from mild treatment. Nearly all authorities, however, agree that radical treatment by knife and cautery is indicated in order to prevent general tuberculosis. Here, as elsewhere, the relative virulence of the bacilli and the reaction of the patient's tissue should be considered. The preauricular gland of the same side as the affected eye is usually infected early. Proof of general dissemination from conjunctival lesion is yet wanting.

CORNEA.

In this country and in England we are accustomed to regard the typical interstitial keratitis as of syphilitic origin. On the continent, however, tuberculosis is often given as the cause. This later view is not so much to be wondered at when we consider the embryology of the cornea. It consists of three layers, each of which corresponds to one of the membranes adjacent, and may be said to represent its continuation over the most anterior portion of the eyeball. The cornea, hence, according to Fuchs, consists of three divisions: (a) conjunctival, (b) scleral and (c) uveal. In the fully developed eye these three divisions are fused into a common whole, although their community of origin with the adjacent membranes still finds expression under pathologic conditions. While the inflammatory changes may be much the same, the origin might easily be not only syphilitic, but rheumatic or tubercular. You are all familiar with the work done by Dr. Connor in establishing rheumatism as a cause of keratitis. The marginal keratitis or sclerosing keratitis is most often considered tubercular in origin.

IRIS.

Tubercle of the iris occurs in three chief forms:

1. Miliary tubercle, characterized by a variable number of yellow nodules, often relatively benign.

2. Confluent or conglomerate tubercle, characterized by definite tumor formation, composed of various forms of granulation tissue, which invades a greater or less part of the anterior chamber, tends to increase and destroy the eye, as well as leading to general infection.

3. Tubercular iritis, usually indistinguishable clinically from other forms of chronic iritis, but sometimes distinguished microscopically by the nature of the infiltration, the presence of tubercle bacilli and experimentally by inoculation results. .First reported in 1869.

In miliary tubercle of the iris nodules are scattered over the surface in varying numbers. They are most often seen in the lower part or in the angle of the anterior chamber, are yellow in color and may have blood vessels upon the surface. They may fill the whole posterior part of the anterior chamber, invading ciliary body and sclero-corneal margin. The cornea becomes infiltrated in its deeper part, showing a tubercular type of interstitial keratitis. The sclero-corneal margin may be perforated, followed by phthisis bulbi, general infection and death from miliary tuberculosis. The prognosis, however, is not necessarily bad. The nodules often grow slowly and may undergo complete absorption, being classified as Leber's attenuated tubercle. They are often improved by iridectomy, but the operation may fail completely. Leber considers that the relatively benign course is due either to attenuated virulence of the bacilli, to the presence of an unusually small number or to a specially strong reaction on the part of the patient.

The cases may run a benign course for a prolonged period and then suddenly become more acute. Samuelson quotes a case in a boy of six in which miliary tubercles of the iris disappeared entirely, but were shortly after followed by pericorneal injection, meningitis and death.

In confluent or conglomerate tubercle there is a definite yellowish-white tumor upon the iris. This type we have seen at least a few times. The growth has the usual tubercular structure. Experimental tubercle of the iris was first studied by Haensel and Cohnheim. The latter showed that tubercular material introduced into the anterior chamber led to tuberculosis of the iris, usually followed by general infection, the latent period varying from a few weeks to several months.

The question as to whether tubercle of the iris is primary or secondary is somewhat undecided, equally good authorities being found on either side. The ciliary body is rarely invaded, so that perforation usually occurs at the angle before the chorioid or vitreous become affected. Chronic iritis due to tubercle is, according to Parsons, generally considered the rarest manifestation of the disease in the iris. There is diffuse infiltration of the iris, with great thickening; usually many giant cells are present, but typical tubercle systems are less common than in other forms. Tubercle bacilli in the tissues are seldom found. The most certain test of the nature of the diseases is afforded by inoculation of a rabbit's or guinea-pig's anterior chamber.

CILIARY BODY.

Tubercle of the ciliary body is generally an extension of the disease from the iris or chorioid. It is not improbable, however, that it commences more frequently in this situation than published records would lead one to suppose, a view supported by the susceptibility of the ciliary body to other granulomatous affections.

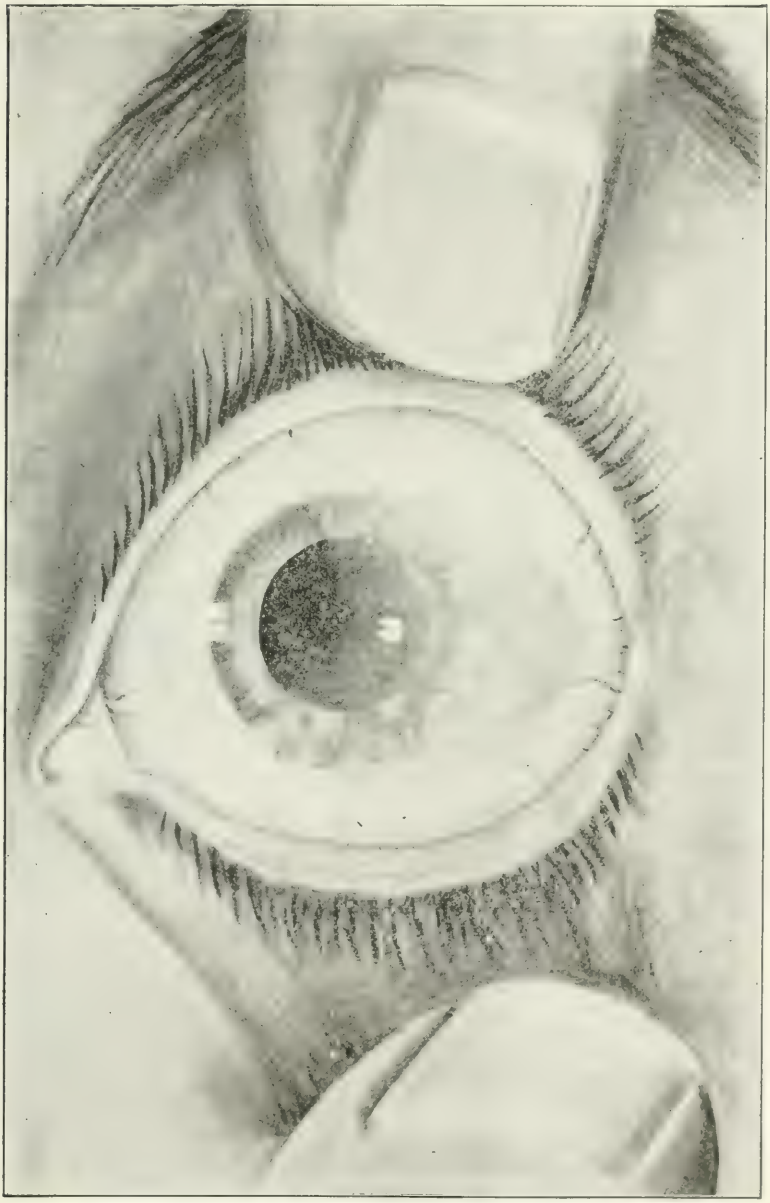
CHORIOID.

Tubercle of the chorioid may occur as a solitary tubercle or as simple chronic chorioiditis. Miliary Tubercle.—Cohnheim found that the chorioid was affected in general miliary tuberculosis in from 75 per cent. to 82.7 per cent. of the cases. It often occurs only shortly before death. The number of tubercles varies greatly—from three or four to sixty or seventy. Both eyes are usually affected. Any part of the chorioid may become affected, but it is most common near the disc. Sometimes the tubercles are so far forward as to be beyond the ophthalmoscopic field of vision.

The nodules vary in size from a pale pin-point speck to 1 or 2 mm. in diameter. They generally project inward slightly, so as to raise the retina, but the inner surface is often quite flat, while the outer surface projects into the sclera.

Most of the vessels in the affected area undergo endothelial proliferation and degeneration of their walls, whereby they are finally obliterated. The resulting malnutrition largely accounts for the cessation (Parsons). The tubercle may start in any layer of the chorioid.

Tubercles in the chorioid appear as white, yellowish-white or reddish-yellow spots, usually isolated and more or less round in form,



pale in the center and often reddish in their outer portions. Occasionally several are aggregated together to form a mass, which may exceed the size of the disc. The larger tubercles may show a slight prominence, but the smaller ones resemble spots of chorioidal exudation or atrophy. Their rounded shape and yellowish tint help to distinguish them. There is no adjacent pigmentary disturbance and they are plainly behind the retinal vessels.

Chorioidal tubercles, according to Gower, occur in both children and adults, and in the chronic as well as in the acute forms of tuberculosis, but they are most frequent in the acute form. Their growth may be very rapid, so that repeated ophthalmoscopic examination is necessary to exclude their occurrence. Cohnheim described them as very commonly to be found after death: Littern found them postmortem in thirty-three out of fifty-two cases. I have had occasion to observe six cases of tubercular meningitis and found tubercle in the chorioid in but one, a boy, aged six. At my first examination no fundus lesion was observed other than a slight congestion of the whole fundus. Eight hours later the edge of the nerve was blurred and congestion more marked. Twelve hours later, and but a few hours before death, several (eight to twelve) small yellowish spots could be plainly seen scattered irregularly over the posterior portion of the chorioid. While chorioidal tubercles generally appear late in the disease, cases have been reported where they occurrd early. Fraenkle reports a case in which they were present before fever or other symptoms of the disease. Their presence is of value as evidence of general tuberculosis, especially when the diagnosis of acute tuberculosis from other acute febrile conditions is difficult, but their absence is of no significance. The bacilli have never been found in these lesions. Alezander[1] reports a case of general tuberculosis produced in a guinea-pig by inoculation with crushed tubercles of the chorioid where bacilli could not be demonstrated.

CHRONIC TUBERCLE.

Michel has advanced the opinion that simple chronic chorioiditis may be tubercular in subjects with the disease; it may assume all the characteristics of disseminatia chorioiditis. There is no proof of the above claim. Chronic tubercle of the chorioid usually has one of two forms:

1. A diffuse inflammation affecting large areas or the whole chorioid with extensive development of granulation tissue.
2. The formation of a large circumscribed tumor-like mass (Parsons).

The first form is the commoner. In it the chorioid is destroyed and replaced by granulation tissue. It may resemble glioma, most of the globe being filled with tuberculous material. Even perforations of the globe may occur, usually in the anterior part, either at the corneo-scleral margin or under the conjunctiva at the site of the perforating anterior ciliary vessels.

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[1] Centralb. f. Auge., 1884.

RETINA.

Solitary or conglomerate tubercle is rare. Tubercle of the retina is secondary to affection of the uveal tract or optic nerve. Miliary tubercle in the sheaths and septa of the optic nerve are not infrequently found. The nerve may be attacked by extension from the eye, the orbit or the base.

O'Sullivan and Story reported a case of tubercle of the retina in a healthy girl, aged 21. There was a history of sudden failure of sight in the right eye three months previously. Examination showed an intense papillitis, differing from the ordinary type in the brilliant whiteness and extreme swelling of the nerve head, with large tortuous vessels. The eye was removed two months later. In the posterior part of the retina there was a tumor one-third of the diameter of the disc extending around its border. The retina was detached on each side, though the chorioid was normal. Microscopically the tumor consisted of a typical tubercle system, composed of small round cells, large irregular cells and giant cells. Parts were caseated and it was traversed by a strand of connective tissue containing blood vessels.

We have all met with cases of keratitis, iritis and uveitis which have not cleared as they should had the origin been syphilis or rheumatism. While the number of reported cases due to tubercular changes is small, it would certainly seem that many cases may have been overlooked.

In this connection I wish to report the following case, which apparently is one of tubercular keratitis:

Mrs. C. M., aged 36, married, American housewife, presented herself at my clinic in the University Hospital with the following history: No constitutional diseases; no previous injuries to the eye; mother's brother died with tuberculosis; weight at present, 133 pounds; height, 5 feet 6 inches; complexion, dark; color of eyes, gray. Three years ago had a corneal ulcer in the right eye, associated with some iritis. In September, 1905, patient first noticed a small reddish spot at the upper border of the cornea of the left eye. The eye was red and inflamed at times, and in a short time similar areas began to appear below and toward the outer border, all situated near the limbus. Within about two or three weeks they had spread to a considerable extent around the outer corneal margin. Twice subsequently the eye nearly all cleared up, but each time returning, the condition being worse than formerly. Gradually the adjacent sclera became of a bluish or violet tint and the cornea slightly hazy, in which condition it remained up to the latter part of December. A little external to the corneal limbus, nearly over the insertion of the rectus muscle, several small pappules appeared. At no time has there been any marked pain or photophobia. Examination at the time of her entrance gave V. = O. D. 15/20, O. S. 15/100; T. N., O. U. The lids are not affected. The cornea is hazy and slightly vascular, while at the limbus all around, excepting directly in, are numerous areas of infiltration of varying size, 1 or 2 mm. in diameter, there being five which are particularly well marked, from which radiate numerous fine lines outward toward the center of the cornea, which appear to be beginning vascularization of the corneal stroma. The bulbar conjunctiva is injected in the neighborhood of these areas and for considerable distance toward the fornix. The sclera in these areas appears of a peculiar violaceous tint, most marked in immediate vicinity of the corneal disturbance. About 10 mm. from the outer limbus there is an elevated area about 3 mm. broad and 5 mm. in length, the greater diameter being vertical, which gives the sclera a slightly nodular or corrugated appearance, the elevations suggesting slight papules. Surrounding this the bulbar conjunctiva is considerably more injected.

The iris reacts to light and accommodation. Oblique illumination shows it to be free from nodules, though there evidently has been some iritis. Under atropin it dilates freely. There are a few small deposits, grayish in color, on the anterior capsule of the lens, possibly the result of old posterior synechia. The vitreous is slightly hazy and the nerve head somewhat congested. There are no chorioidal changes. The urinary examination was negative.

There were 4,000,000 red blood corpuscles, 10,600 white corpuscles and the hemoglobin was between 80 and 90 per cent. The differential blood count gave small lymphocytes, 17 per cent.; large lymphocytes, 8 per cent.; polynuclears, 67 per cent.; eosinophiles, 7 per cent.; scattering and atypical, several.

Physical examination disclosed no tubercular foci of the lungs or elsewhere. A bilateral laceration of the cervix with retroversion of the uterus was found by Dr. Peterson. She was referred to Dr. Dock for tuberculin test, who reports typical reaction after using 10 mg. of tuberculin.

Previous to her entry into the hospital she had been treated with atropin, hot compresses and electric massage. After being under observation for a time she was again referred to Dr. Dock's clinic for tuberculin treatment, dionin and atropin being continued. About April 11 the following notes were added: The condition remains much the same as when she entered the hospital, with the exception that there is less corneal haziness and an improvement in vision from 15/100 to 15/50. Over a circumscribed area nearly overlying the ciliary body, from directly over the center of the cornea down and out, passing through the nodular portion before mentioned and continuing on around below the cornea to a line perpendicular to its inner border, the sclera appears peculiarly creamy-white and uninjected. The cornea is still surrounded to about the same extent with a marked violacious tint within the ring described as overlying the ciliary body. In the center of the scleral elevation are five or six very slightly elevated nodules, scarcely apparent save on close examination, though these at times have been more distinct than at others. There is some violacious tinting of the sclera directly out from this area toward the fornix, and the conjunctiva is considerably congested, both here and between the scleral elevation and the cornea. The patient has lost about eight pounds. She has no cough or expectoration, and there are no general tubercular symptoms. The loss of weight has been attributed to her hospital life. Following each injection of tuberculin the eye is for a day or two much more injected, the process assuming an active character to immediately subside until after the next treatment.

Throughout the whole period of her stay the appearance has been markedly variable. At times there is so much lessening of the injection and congestion that it appeared as if rapid recovery were about to take place. April 19, eye improved; April 30, cornea clearing. On May 3, after a dose of 400 mm. gr. of tuberculin, there was a very active reaction. The cornea became clouded and there was a very marked circumcorneal injection. This, however, cleared up rapidly, and on the 7th the eye was again quiet. The patient then went home, where she has remained under the care of Dr. B. D. Niles, by whose advice she first came to the hospital. May 14 he reported her as doing very well.

While we have only clinical proof in the above case to substantiate our diagnosis, it would appear from the signs, together with the tuberculin reaction, to be one of primary tubercular keratitis.

DIABETIC RETINITIS.*

W. E. Gamble, M.D.

CHICAGO.

(Illustrated.)

F. R., aged 35 years, presented himself to me for treatment Jan. 30, 1905, on account of reduction in sight. V. R. 3/200, L. 3/200, pupillary action normal, no changes in lens or vitreous. Ophthalmoscopic examination revealed punctate retinitis about the posterior pole of the right eye. Later found punctate exudate more widely scattered. Exudate was brilliantly white and exceedingly refractile. A few almost imperceptible hemorrhages could be seen. Outline of the optic disc was normal, and retina, excepting areas mentioned, seemed normal in appearance. Vessels were normal in size and appearance. In the left eye this punctate exudate was most pronouncedly present to the nasal side of the optic disc, while the exudate was also found about the posterior pole of the eye and widely scattered, a few very small hemorrhages present. The exudate was white and refractile. In neither eye was the exudate arranged in concentric form about the macula. The refractile bodies in the exudate in retinæ are undoubtedly cholesterin crystals. It is interesting to note that the cholesterin is absent in other part of eyes. There was no history nor evidence of syphilis being present.

Examination of the urine revealed the following condition: Twenty-four-hour specimen of urine, quantity 3,750 c.c., straw-colored, specific gravity 1,031, sugar present 1.67 per cent., no albumin nor casts discoverable. In later examination of urine 2 per cent. sugar was found, with no albumin nor casts present. March 3, Dr. Peter D. Spiron examined the urine. His report shows that he found 3 per cent. sugar, no albumin.

March 10, vision R. and L. 12/200 and the exudate is not quite so refractible and lessened in amount.

Under Hirschberg's classification of diabetic retinitis this case comes under Class 1, that is, central punctate diabetic retinitis, or typical diabetic retinitis, and not his Class 2, in which hemorrhages in the retina is the only finding.

In the light of this case a differential diagnosis based upon the color of the exudate, between diabetic retinitis and albuminuric retinitis, would be somewhat hazardous. One of our most careful observers described the exudate as "having a more dingy shade of white than that of albuminuric retinitis." I could conceive of no brighter shade of brilliant white, almost diamond-like, than is present in this case, and, therefore, would place no value upon the appearance of the exudate as a diagnostic factor. Dr. Oscar Dodd holds that the variation in color is undoubtedly due to the stage of the disease at which it is seen. In early stage it is white and later more dingy shade.

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* Read before the Chicago Ophthalmological Society.

The location (widely distributed) of the exudate and the arrangement (not concentric about the macula) is unlike albuminuric retinitis as commonly seen; and, further, the general disturbance of the retina outside of the exudate, which is commonly found in albuminuric retinitis, is not here present, nor is there any optic neuritis, which is sometimes seen in connection with albuminuric retinitis. Many ophthalmoscopic observations over a period of five months revealed but little tendency for the masses of exudate to flow together, as seen in albuminuric retinitis. The nearest approach to this was seen in Figure "A," Plate 2, three separate spots being first observed where only one is seen now. Unlike the tortu-

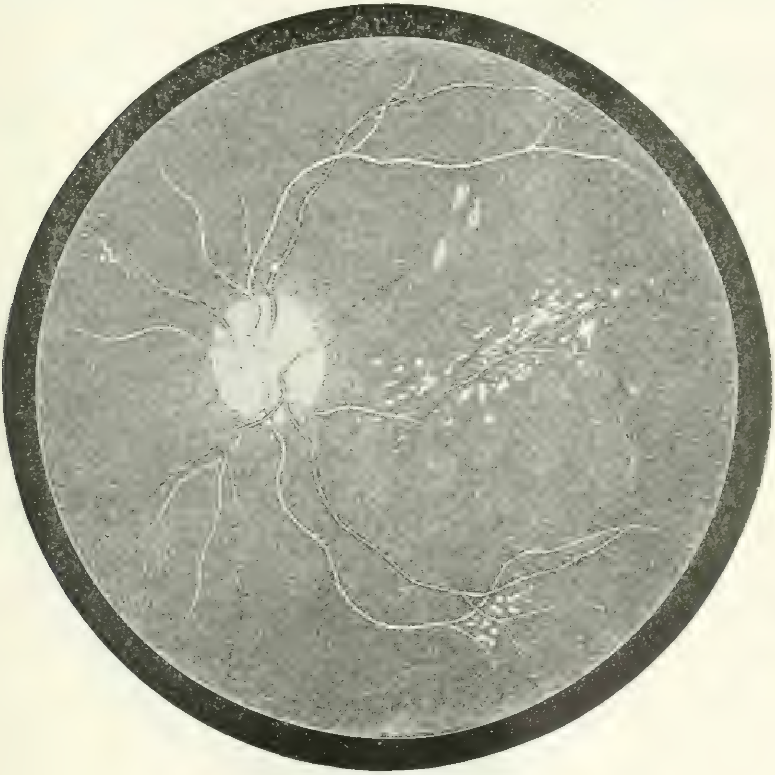

Figure 1.

ous, engorged veins of albuminuric retinitis, the veins in this case were not tortuous nor engorged. It will be seen that the attempt at a differential diagnosis above made in this case strikingly agrees with the differential diagnosis of these cases as made by Dr. Oscar Dodd.[1]

DIABETIC RETINITIS.

1. Groups of bright glancing spots in retina, irregular in outline, usually in central part, but frequently affecting the whole of fundus.

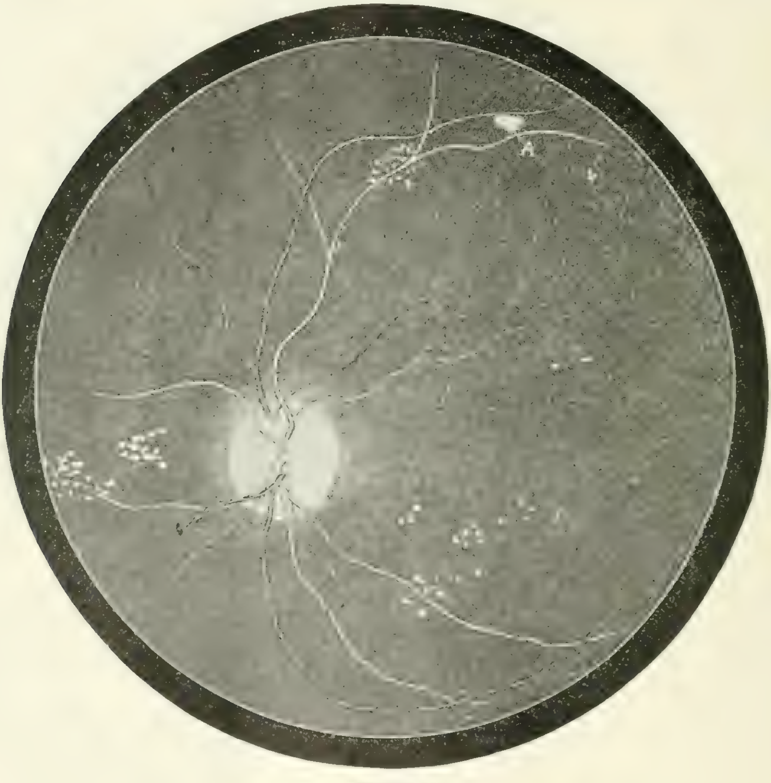

Figure 2.

2. If the spots are larger there still exist small dots and lines, and they never run together.

3. Arteries and veins not much changed in appearance.

4. Optic nerve either not affected or atrophic.

5. Retina diffusely affected.

ALBUMINURIC RETINITIS.

1. At first a group of bright bluish-white spots in center of retina, often forming stellate patch about the macula.

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[1] Archives of Ophthalmology, vol. xxiv, No. 2, 1895.

2. Spots may run together and involve all of central part of retina.
3. Arteries narrowed, veins large and irregular.
4. Optic nerve swollen and outline indistinct.
5. Retina infiltrated.

Central scotoma was absent. It would seem, without taking other factors into account, that the prognosis as to duration of life would be better in this case than in a case of the hemorrhagic type, for the reason that there is more lesion of the capillaries in the latter, as evinced by the escape of the larger blood cells.

The prognostic significance of retinitis in diabetes has recently been discussed by Nettleship. He bases his conclusions on 48 cases. The patients ranged from 41 to 79 years; 38 were known to have died; 9 in the first year, 11 in the second, 18 between 2 and 8 years after the discovery of the retinitis; 10 were known to have been living two years after such discovery; 6 at periods of from six to ten years after.

The prognosis as to duration of life, therefore, differs widely from that of albuminuric retinitis, since two-thirds of the patients were living two years after the retinal lesions were observed. The accurate paintings from which the above plates were taken were made by my friend, Dr. J. F. Burkholder, for which I wish to express my thanks.

103 State Street.

Reports of Societies.

SECTION ON OPHTHALMOLOGY, AMERICAN MEDICAL ASSOCIATION.

BOSTON, MASS., June 5-8, 1906.

The Chairman, Dr. Lewis H. Taylor, Wilkesbarre, Pa., presided.

Chairman's Address: Dr. Taylor said that to present a résumé of the program of Ophthalmology during the past year would take up more time than should be allotted to an introductory address, and that an excellent review of this work could be found in the *Interstate Medical Journal* for January, 1906, by Dr. John Green, Jr., and in the *Ophthalmic Yearbook,* edited by two of the most active workers, Drs. Jackson and de Schweinitz. He referred to the presence in the Section last year of Professor Hirschberg, and advocated the precedent set of securing some distinguished man in ophthalmology to address the Section. Prof. Karl Wurtzburg Hess had been expected at this meeting, but had found it necessary to cancel his engagement. The chairman referred to the death, during the past year, of Dr. Swan Burnett, of Washington, in which ophthalmology had suffered a great loss. He announced the adoption of the new plan of having the papers to be read before the Section published in advance which would be submitted to the Society for its approval. Dr. Taylor said he thought this Section should be the representative Ophthalmological Association of the country; it was the only society from which a reputable oculist could not be debarred by personal prejudice or the delays of membership committees. The utterances of this Society, when unanimous or nearly so, should have greater weight than those of any other ophthalmological society in this country. The last word had not been said on a great many subjects in ophthalmology, as, for instance, on ocular muscles, on cataract operations, on ocular tumors, etc., and there still remained large fields for investigation. The subject of refraction, too, he thought, required a great deal of consideration. More careful instruction in ophthalmology in the medical schools was advocated, and the scientific ventilation of school buildings and their proper lighting with reference to eyesight were also matters that deserved the consideration of the Section. In conclusion, the chairman said that he hoped at an early date for an expression from the Section as to the prevention of blindness and some definite and uniform instruction and legislation along that line.

"A More Uniform Standard for the Illumination of Visual Test Types." Dr. Charles H. Williams, Boston.

Dr. Williams described a method of obtaining a uniform illumination of the test types by means of two vertical columns of eight five candle-power incandescent lamps placed on each side of the test type card, one foot in front of the plane of the card and one foot from the nearest edge of the card. The lights were protected from the observer by a screen. The amount of light reflected from the card was measured by a special form of photometer, the effect of varying the illumination in reducing the apparent acuteness of vision being also measured, as well as the amount of reduction of the illumination caused by introducing a fixed amount of resistance into the circuit.

Dr. O. F. Wadsworth, Boston, thought the idea a practical one, as there was no question that on very dark days you could not use daylight satisfactorily and artificial light must be employed, but he thought the reflection from the white background somewhat too brilliant. Dr. Nelson M. Black, Milwaukee, advocated more uniformity in reporting visual acuity as measured by test types, and thought that there should be some standard of illumination expressed in candle-power units. He had advised and used a luminous test type cabinet (Ophthalmic Record, April, 1904) in which the letters are engraved on porcelain and transilluminated with three incandescent lamps of eight candle-power each. Dr. George F. Keiper, Lafayette, Ind., passed around photographs of a test type cabinet which he had devised. Dr. Miles Standish, Boston, thought Dr. Williams' method radically wrong in putting a light card in a black box, as it would produce fatigue of the retina. The photometer he considered a very excellent instrument. Dr. H. V. Würdemann, Milwaukee, thought that there was great necessity for some uniform standard for illumination of test types, but thought the method of Dr. Williams would produce retinal fatigue; the background, instead of being black, should be a dark gray. Dr. Lucien Howe, Buffalo, referred to the Crooks radiometer used twenty years ago as a very excellent little photometer, though it was not to be compared with the excellent method of Dr. Williams. He thought the test types of Dr. Williams very excellent.

"A New Supplementary Test for Color Vision; the Semaphore Lamps Used in Railway Service Being the Source of Illumination." Dr. Nelson M. Black, Milwaukee, Wis.

The writer referred to the dissatisfaction expressed at methods used in testing color vision which, he said, had created a demand for a supplementary test which various forms of lanterns had attempted to supply. Such a test, he said, must fit exactly conditions found in practice; persons tested should be required to name the objects; objects for testing should resemble objects in actual use; comparison of colors should be required; test should give impression of signal seen at a distance; it should be such as could be conducted indoors. In the author's supplementary test the optical laws were brought into operation which reduce the apparent size of an object when looking through the wrong end of an opera or field glass. The source of illumination was the standard semaphore lamps actually used in railway block signaling. With the several measurements known, the apparent distance of the object could be deduced from a formula.

Dr. Charles H. Williams, Boston, said a practical difficulty was that the men could give the name to the impressions which they received from the two lights, although they might be extremely defective in color perceptions; there should be a choice between different shades of the same color. Dr. M. P. Frank, Chicago, thought that Dr. Black's formula did not take into account the fact that the light varies as the square of the distance, nor did it take into account the focal length of the lens, the thickness of the glass, and the source and kind of light. The absorption of light, too, he said, varied according to the angle of incidence. Dr. W. R. Parker, Detroit, had had two years' experience with Dr. Williams' lanterns and found them a very valuable aid, having been able to detect color blindness in those who could pass the worsted test. Dr. Nelson M. Black, in closing the discussion, called attention to the fact, in reply to Dr. Williams' remarks, that different shades of glass were used in these lanterns. The instruments, he said, were only in the experimental stage and the working out of the formula might not be at all perfect yet.

"A New Phenomenon of Color Conversion." Dr. George T. Stevens, New York.

This phenomenon which the writer called attention to was as follows: If in the midst of a somewhat extended surface of a given color a narrow strip of complementary color is viewed with a fixed gaze the narrow strip will be eliminated and its place will be occupied by the predominant color. It was not a color illusion and differed from color phenomena hitherto described. Comparisons were made with simultaneous contrasts, with successive contrasts or after images, the phenomenon of Purkinje, that of Troxler and other known principles.

Dr. Charles H. Williams, Boston, considered that the explanation of the phenomenon depended upon two things, chromatic aberration and retinal fatigue. Dr. Nelson M. Black, Milwaukee, thought that the bleaching effect of various colors of the spectrum upon the visual purple might help to account for the phenomenon. He thought it possible that the long continued effect of gazing at the green outer color produced so much bleaching of the visual purple at the particular part of the retina the rays fall upon that the red after a time failed to make any impression on that part of the retina. Dr. F. H. Verhoeff, Boston, thought that chromatic aberration did not play any part in the phenomenon, that the diffusion circles would be so small in comparison with the lines of the diagram as not to cause confusion. He did not consider that accommodation played any part, either, as could be shown by holding a pencil between the eye and one edge of the red square and looking at it steadily; the phenomenon would take place, and if you removed the pencil the red would flash out. Dr. Edward Jackson, Denver, suggested that suppression of the image as when using the ophthalmoscope or microscope with one eye might have some bearing on the phenomenon. He did not think retinal fatigue played any part in the matter. Dr. Miles Standish, Boston, said that the phenomenon did not always occur with him and it was evident that it differed with different people. Dr. George T. Stevens, in closing, said he did not think fatigue of the retina played any part in the phenomenon because many people could make the conversion in a second.

"Dendritic Keratitis of Malarial Origin." Dr. E. C. Ellett, Memphis, Tenn.

The writer described an uncommon form of corneal inflammation, appearing almost invariably as a complication of acute malaria. It affects the cornea in a characteristic manner, namely, with an ulcer of peculiar shape (dendritic or branching), which does not tend to suppurate, is never multiple and rarely, if ever, attacks but one eye, tends to run a protracted course and, as a rule, without marked uveal irritation. It is probably trophic. In addition to appropriate internal treatment, the local application of tincture of iodin often had a good effect, though frequently a milder means of treatment was best.

Dr. C. J. Kipp, Newark, N. J., said that this form of keratitis he had found almost exclusively among persons suffering from malarial poisoning. In former years, when malarial fevers were very prevalent in his locality, he saw a great many cases of this form of keratitis, but at present, when malarial fevers were less frequent, but few cases came to his notice. Where there was much secretion he had found a solution of silver nitrate, 1 to 2 per cent., of benefit. Dionin had also been valuable in the form of an ointment of 2 to 5 per cent. He called attention to a class of cases presenting the appearances of choked discs in which the disease was really a circumscribed retinochoroiditis, in which cases the patch of retinal choroiditis is stretched on the border of the papilla, and said the true character of the disease was often not discoverable until the papillitis had subsided, when there was found an atrophic patch fringed with pigment. Dr. H. Moulton, Fort Smith, Ark., had seen the disease follow chronic malaria. Sometimes there were ulcers in which there were shreds of epithelium about the edges of the dendritic area, and one should not forget that it was possible for these to become infected with pus-forming germs.

Dr. George F. Keiper, Lafayette, Ind., had had a case last year in which there were no symptoms of malaria, and on bacteriologic examination a germ had been discovered which could not be differentiated.

Dr. John Green, Jr., St. Louis, called attention to the use of quinin bisulphate in 3 per cent. solution for local treatment, used by dipping a cotton-wound probe in the solution and passing it over the surface. Dr. Leartus Connor, Detroit, had not found that local treatment materially hastened recovery, nor that constitutional treatment was very efficacious. In the last two cases he had observed good effects from the use of salicylate of strontium. Dr. Edward Jackson, Denver, took issue with Dr. Ellett's description that in a sense it could not be said that there was any characteristic change in sensibility of the cornea. The change in sensibility of the cornea, he said, was very easily overlooked, because it might be lost in limited sectors and not over the whole cornea. Dr. S. D. Risley, Philadelphia, had observed that these cases got rapidly better under periodic doses of quinin and arsenic, though he was not prepared to say that they did not act simply as tonics. He referred also to their tendency to recurrence at the recognized periods for recurrence of the fever and thought there was something specific in this particular form of keratitis.

"Uniocular Inflammations of the Optic Nerve and Retina." Dr. A. A. Hubbell, Buffalo, N. Y.

The paper embodied reports of eighteen cases of uniocular inflammation of the optic nerve and retina. Four cases were uniocular optic neuritis, four were uniocular neuro-retinitis and ten were uniocular retinitis. In some the inflammation was mild, in others it was severe. The milder cases recovered more or less completely, while vision of the affected eye was lost or nearly lost in the more severe cases. No definite relation to other diseases could be established in most of the cases. Iodid of potassium was commonly given. Some cases seemed to be improved by it, while others were not benefited at all.

Dr. Eugene Smith, Detroit, had long since been convinced that the apparent silence on the part of text-books and journals concerning this matter was only relative. He fully agreed with Dr. Hubbell that these cases were decidedly more common than was generally supposed. He had had recently four cases of uniocular neuro-retinitis under observation.

Dr. J. P. Herron, Jackson, Tenn., had, after reading Dr. Hubbell's paper, found in his records four cases which he had had under observation since March 1. He was inclined to attribute the frequency of these cases to malarial toxemia. His four cases were described in detail.

Dr. J. A. Patterson, Colorado Springs, said intranasal complications as a cause of these conditions must not be overlooked and that patience and skill in examining the nose was required before this possibility could be excluded.

Dr. Wendell Reber, Philadelphia, since reading Dr. Hubbell's paper had gone over his records and found in the last year three cases of undoubted uniocular optic neuritis. He did not think it a very rare phenomenon. He called attention to the use of chloral in these cases, which acted by producing a cerebral anemia.

Dr. A. R. Baker, Cleveland, had some years ago reported to the society a case of retinitis circinata in one eye, with the other eye normal. He called attention to the danger of examining one eye and taking it for granted that the other was all right.

Dr. C. J. Kipp, of Newark, N. J., called attention to a class of cases which seemed to be primary optic neuritis and which were not, in which there is a circumscribed retinitis so close to the disc that you can not separate it, giving an appearance of choked disc until the disease has run its course. The only way to distinguish this condition was to look for deposits on Descemet's membrane.

Dr. E. E. Holt, Portland, Maine, had seen a number of instances of optic neuritis in one eye without appreciable diminution in vision. He thought the condition rather common.

Dr. S. D. Risley, Philadelphia, emphasized the danger referred to by Dr. Kipp of mistaking cases of retino-chorioiditis for optic neuritis. He was inclined to think uniocular neuritis of less grave import than binocular. He had not been able to determine any general etiology for the occurrence of uniocular neuritis.

Dr. W. H. Wilder, Chicago, did not think the condition should be regarded as a disease entity. He thought an explanation might be found in the anatomic asymmetry so frequently seen in the body; there might be asymmetry of the optic nerve. There might be arteriosclerosis affecting the vessels of one eye and not the other.

Dr. George E. de Schweinitz, Philadelphia, classified cases of unilateral optic neuritis into four groups: First, unilateral optic neuritis, due to brain tumor and other intracranial causes; second, that due to certain well-known infections; third, that due to local causes, the optic foramen or the contiguous sinuses; fourth, that due to conditions associated with the vascular supply, as arteriosclerosis. He agreed with Dr. Wilder's explanation which determined for anatomic reasons a unilateral instead of a bilateral neuritis, and considered it not a disease entity, but a local manifestation.

Dr. Melville Black, Denver, called attention to the value of the estimation of blood pressure in these cases, and said that where the tension is high its reduction by proper medication would do much toward bringing about recovery.

Dr. A. A. Hubbell, in closing the discussion, agreed with most of the suggestions that had been made, particularly those of Dr. Wilder and Dr. de Schweinitz.

"Retrobulbar Optic Neuritis Following Childbirth." Dr. C. J. Kipp, Newark, N. J.

The writer reported two cases. Case 1.—An attack of retrobulbar neuritis of right eye following four successive childbirths. No albuminuria. During attack following third pregnancy part of eyelashes and part of hair of brow in line with supraorbital nerve turned white and the hair growing in this situation has been white ever since. Total blindness of right eye followed fourth pregnancy. The optic neuritis was attributed to a disturbance of vascular supply at or near the apex of the orbit. The absence of pigment in the hair was thought to be caused by a change in the hair papillæ, whereby the supply of pigment to the hair shaft was interrupted. This was due to some disturbance in the nerves supplying the papillæ. Similar changes had been observed to follow sympathetic ophthalmia, but none so far after optic neuritis. Case 2.—One of retrobulbar optic neuritis of one eye after first childbirth. There was eclampsia, but no albuminuria. Restoration occurred after many months.

Dr. George S. Derby, Boston, said in discussion that about a year ago he published a paper on this subject, going over the literature very thoroughly, and he had gotten the impression that no definite etiology could be attached to these cases.

Dr. Nelson M. Black, Milwaukee, thought that in the first case the supraorbital neuralgia pointed strongly to the possibility of disease of the sinuses.

Dr. C. J. Kipp, Newark, said in closing that the cases referred to by Dr. Derby were attributed to lactation. The cases reported had followed every pregnancy for four successive pregnancies.

"Bacteriology of the Eyelids." DR. GEORGE S. DERBY, Boston.

The writer considered the influence of location and of anatomic peculiarities; the influence of the ordinary pus organisms in diseases of the lids, furuncle, erysipelas, abscess, cellulitis, hordeolum and blepharitis; the diseases caused by the various specific bacteria, tuberculosis, leprosy and the like, and the diseases due to animal parasites as pediculosis, cysticercus of the lids, and diseases due to vegetable parasites, such as ringworm and favus, giving a complete résumé of the literature on the subject.

"The Pathogenic Bacteria of the Conjunctiva." DR. EDWARD A. SHUMWAY, Philadelphia.

The writer considered the established facts concerning the bacteriology of conjunctivitis and said the same form of conjunctivitis may be caused by different organisms, and that one organism may cause different forms of conjunctivitis. The general morphology was now generally settled. The special organisms, such as the Koch-Weeks bacillus, diplobacillus, pneumococcus, gonococcus, diphtheria bacillus, xerosis, staphylococci, streptococci and the rare organisms were all considered.

"The Pathogenic and Pyogenic Bacteria of the Eyeball." DR. JOHN E. WEEKS, New York.

This paper considered the various micro-organisms that affect the cornea, the sclerotic, the iris, lens, vitreous humor, ciliary body, retina, chorioid and optic nerve and the lesions that they produce. The peculiarity of direct and secondary, of primary and metastatic invasions of the various parts of the eyeball by various organisms was discussed.

In discussion Dr. Robert L. Randolph, of Baltimore, called attention to the *Bacillus coli communis* as sometimes producing inflammation of the eye, and said it had been demonstrated in the interior of the eye in panophthalmitis.

Dr. E. V. L. Brown, of Chicago, considered that Dr. Derby had thoroughly covered the subject of his paper and that in the future it would be a place to which to refer for the literature of the subject.

Dr. William C. Posey referred to the various types of conjunctivitis caused by the diplobacillus of Morax-Axenfeld and said the inflammation was not as active as that occasioned by the pneumococcus. Iritis, with synechia and hypopion, were not uncommon. The most common type of ulceration of the cornea excited by the diplobacillus occurred in the form of a disc-like infiltration of the superficial layers of the central portion of the cornea. The inflammation excited by the diplobacillus, the speaker said, yielded readily to applications of zinc.

Dr. George S. Derby, Boston, said that in seventy-eight cases of conjunctivitis examined at the Eye and Ear Infirmary the diplobacillus had been found seven times in pure culture.

Dr. Edward Jackson, Denver, referred to an epidemic in the spring of 1904, originating in Denver, and said in reference to corneal involvement that he had seen only one severe case due to diplobacillus and that it yielded readily to the zinc treatment.

Dr. C. D. Wescott thought that many American patients resisted the zinc therapy and that some would tolerate zinc ointment who would not tolerate the solution.

Dr. C. W. Hawley, of Chicago, in an epidemic had used antipyrin successfully.

Dr. William M. Sweet, Philadelphia, had made spreads and cultures in thirty-one cases of conjunctival and corneal disease and found the diplococcus present in six cases. The zinc sulphate, one grain to the ounce, was the only treatment to which they responded.

Dr. Charles H. Williams, Boston, had found the soda iodolate of zinc beneficial in these cases, especially when combined with chlorotone.

Dr. Nelson M. Black, of Milwaukee, had noticed that in these cases the patients almost invariably complained of symptoms closely related to those of refractive errors, showing the importance of bacteriologic examination in many refractive cases.

Dr. E. V. L. Brown, Chicago, spoke of a case of bacillus subtilis infection following a penetrating wound of the sclera, in which a pure culture of the bacillus subtilis was obtained.

Dr. Brown Pusey, Chicago, thought that the failures with the zinc treatment were due to the fact that the treatment was not persisted in long enough.

Dr. Edward A. Shumway, Philadelphia, said that Axenfeld in his last article concludes that the diplobacillus has a capsule, which is demonstrable by special staining methods.

"The Staining and Examination of the Bacteria of the Eye by Simple, Practical Methods." DR. EDGAR S. THOMSON, New York.

The paper describes simple and practical methods of preparing film preparations, methods of staining, counterstaining and decolorization. The examination of the gonococcus in fresh smears, the diplococcus of meningitis, the Koch-Weeks bacillus, the Morax-Axenfeld diplobacillus, the Klebs-Loeffler bacillus, the pnuemococcus, xerosis bacillus, the methods of preparing scrapings from the conjunctiva and cornea and of making tissue sections were discussed.

Dr. Brown Pusey, Chicago, presented microscopes and slides for demonstrating about twenty-five forms of bacteria which invade the eye, and in discussing the paper suggested that the title be changed to read, "The Staining and Examination of the Eye by Accurate Methods," as he thought accuracy in the examinations more important than ease and rapidity.

Dr. Arnold Knapp, New York, thought the bacillus of influenza would be found more frequently in these cases if proper culture media were used. He referred to the necessity of making cultures as well as smears in the examination for the diphtheria bacillus.

Dr. George S. Dixon, New York, agreed with Dr. Knapp that a diagnosis should never be made of diphtheria without a cultivation.

Dr. John E. Weeks, New York, emphasized the necessity for the staining of secretions and the examination of smears in cases of conjunctival disease, as clinical examination alone was not sufficient in a great many cases.

Dr. E. L. Meierhof, New York, thought that unless one was constantly cultivating this work his bacteriologic examinations would be very unsatisfactory.

Dr. Brown Pusey, Chicago, protested against turning the examinations over to some one else and thought it behooved the man treating the case to find out for himself the cause and nature of the disease.

"Physical Economics." Dr. E. E. Holt, Portland, Maine.

This paper dealt with mathematical formula for the normal earning ability of the body, by which, with the requisite data, a person may be either rated or his economic value may be ascertained, and thereby damages to his body from injury or disease, with an indemnity be allowed therefor, may be determined in a manner equitable to all concerned. When called on to ascertain damages to the eyes from an injury an oculist frequently met with other disabilities which occurred at the same time. If he worked in connection with other physicians and surgeons who were to determine damages to other parts of the body, it was highly important that there should be standard methods of procedure which could be applied to every system and organ of the body, so that each might understand the other and work together to obtain results on a scientific basis.

Methods by which this might be accomplished were demonstrated.

Dr. H. V. Würdemann, Milwaukee, said that there was a remarkable similarity of results obtained by these methods to the damages given in several hundred damage suits that he had collected. He thought that we needed statistics on the subject and that each one should contribute to the literature one or more cases showing the amount of earning capacity after a certain accident, as it was only by such evidence that we would be able ultimately to exactly determine the percentage of loss of earning ability following a given accident.

Dr. L. W. Fox, Philadelphia, said it was very desirable to have some such system by which we could form an opinion to place before the courts when called upon.

Dr. Edward Jackson, Denver, thought that functional ability was the foundation of the whole subject and would have to be settled by our united statistics, and the members should consider the cases that come to their notice with reference to this point, so that we could have a basis for making these formulæ of greater value.

"Some Unusual Ocular Manifestations of Arteriosclerosis." Dr. William Zentmayer, Philadelphia.

The paper reported a case of optic atrophy, one of periodic transient total blindness of both eyes followed by prolonged obscuration of the inferior field of vision, developing into permanent total blindness of this area, with atrophy of the upper half of the papilla, shrinking of the corresponding vessels and evidence of sclerosis of all of the retinal vessels of one eye. Secondly, a case of monocular visible spasm of the central artery of the retina. There was repeated opportunity of studying the fundus during an attack and the author gives a description of the phenomena witnessed.

"A Demonstration of the Fundi of Some Birds, with Remarks on Their Eyes and Eyesight." Dr. Casey A. Wood, Chicago.

This consisted of an exhibition with the opaque projector and stereopticon of a series of drawings, showing the anatomic and physiologic characteristics of the fundi of some birds.

"Relations of the Superior and Inferior Recti Muscles to Convergent Squint." Dr. Edward Jackson, Denver.

The writer said as the eye is turned inward the power of the primary adductor, the internus, diminishes. But the superior and inferior recti, attached in front of the center of location of the eyeball, have their insertions carried inward, so that they gain more and more power to turn the eye in or hold it in convergence.

This makes these muscles, or rather nasal portions, of great importance in convergent strabismus. A case reported illustrated the permanence of results obtained by extended tenotomy. The primary adductor and abductor, the internus and externus, tend to equilibrium with the eye directed forward. The secondary adductors, the superior and inferior recti, and the secondary abductors, the obliques, tend to turn the eye ever more strongly in or out. A rational operation to correct excessive convergence must tend to lessen the relative influence of the secondary adductors.

Dr. Francis Valk, New York, did not believe that Nature ever placed a muscle in the human economy to perform two or three different functions; they had but one function, and if cases of squint were studied on that principle operations would be more successful.

Dr. G. C. Savage, Nashville, thought we should not forget that there were two purposes in view in operations on the muscles: one to increase or lessen the tonicity of the muscle, and the other to change the plane of its action. The tonicity of a muscle should always be taken into consideration before operating upon it. He thought Dr. Jackson had placed a dangerous precedent before us.

Dr. M. D. Stevenson, Akron, Ohio, thought there was no muscle attached to the eye that had not three different movements, which he demonstrated by drawings on the board.

Dr. Frank Todd, Minneapolis, thought there might be certain cases in which this might be valuable—where measurements showed an excess of rotation inward and no defective rotation outward.

Dr. John E. Weeks, New York, protested against the operative procedure as not only weakening the internus and the secondary adductors, but also the externus. He thought it dangerous to advocate an operation so pregnant of evil.

Dr. Myles Standish, Boston, considered the method a very good one and had done some operations with entire success in analogous conditions.

"A Study of Convergence and Its Defects, Including an Analysis of Four Hundred and Forty-one Cases of Exophoria." Dr. Wendell Reber, Philadelphia.

The paper considered the evolution of binocular vision, evolution of convergence as a separate act, ontogeny and philogeny of convergence, analysis of the act of convergence. It gave an analysis and statistic arrangement of 433 cases of exophoria. It considered exophoria not a passive condition, but a reversion to the next lower type (that is to say, an atavistic phenomenon). The author draws twenty-three conclusions relative to the symptomatology and treatment of exophoria.

Dr. Edward Jackson, Denver, agreed with the author's conclusions as to treatment in the order in which they were given: right living, careful refraction, convergence training, prisms (bases in) for infinity, prisms (bases in) for reading glasses only, tenotomy or advancement. With reference to exophoria and age he also agreed with Dr. Reber that it becomes more common with increasing age. He thought low degrees of exophoria extremely common.

Dr. Alexander Duane, New York, preferred the cover test (measuring the deviation with prisms) in testing exophoria for near. He was opposed to the use of prisms for constant wear, because, while serviceable for a time, they seemed in the long run to be detrimental.

Dr. G. C. Savage, Nashville, said that no test of the lateral muscles was reliable when made under the influence of the mydriatic, as the relationship between convergence and accommodation was such that if you take away the accommodative power you destroy the converging power and do not get reliable results.

Dr. Oscar Wilkinson, Washington, considered that there was a certain class of cases where one never got more gratifying results than with the use of prisms. He did not believe that exophoria increased under the use of prisms.

"Some Axioms Concerning Ocular Rotations." DR. G. C. SAVAGE, Nashville.

The paper submitted the following axioms: (1) A loose, well-fitted convex sphere in a fixed concave sphere may be rotated on any diameter; (2) the axis of rotation must be at right angles to the plane of rotation; (3) the center of curvature is the center of rotation; (4) no single diameter must lie in every rotation plane; (5) the eye has a single diameter (the visual axis), which is common to all planes of rotation; (6) center of macula is posterior pole of eye; (7) center of rotation is center of retinal curvature; (8) all axes of rotation lie in equatorial plane at right angles to all meridional planes; (9) plane of horopter must contain the two visual axes, the two centers of rotation and the two horizonal retinal meridians; (10) axis of horopteric plane connects the two rotation centers; (11) eyes not level must be torted in direction of lower eye; (12) every line of direction is a radius of retinal curvature prolonged.

This paper was discussed by Dr. George H. Price, Nashville; Dr. M. D. Stevenson, Akron, Ohio; Dr. F. H. Verhoeff, Boston, and Dr. Lucien Howe, Buffalo.

"Ophthalmic Practice of the Present Time." DR. FRANCIS VALK, New York.

The author considered that the study of refraction and the motility of the eyes should not be according to any special method or follow any special teachings; that all objective methods of examination were essential in refraction and motility; that heterophoria was a well-established abnormal condition of the motility of the eyes and should be corrected either by glasses or operation; that cases of refraction not relieved by glasses might not be failures if examined as to motility.

Dr. A. E. Prince, Springfield, Ill., had found so many cases of asthenopia accompanied by small errors of refraction and little or no muscular imbalance that he designated them "atonic asthenopia," and found that they were nearly always caused by unwise use of the eyes. For these cases he advised work at normal range with an interruption every five minutes by ten seconds' rest. He favored advancement as an operation in heterophoria or strabismus.

Dr. Oscar Wilkinson, Washington, believed that the use of homatropin would often fail to bring out what he termed astigmatic accommodation and atropin should be used.

Dr. G. M. Gould, Philadelphia, advocated an endowed and recognized optical refraction school, as none of the profession seemed to agree with one another in their prescriptions for glasses.

Dr. Leartus Connor, Detroit, disagreed with Dr. Gould and said that he met every day with work of his fellow ophthalmologists with which he absolutely agreed and he did not think there was any need for a school to teach refraction.

"Conjugate Lateral Deviations." DR. J. H. CLAIBORNE, New York.

The paper referred to the associate or conjugate movements of the eyeballs, reviewed the literature bearing on associate deviation as a symptom of apoplexy. It considered the conjugate lateral deviation caused by primary nuclear disease; vertical form of conjugate deviation; the cross fibers passing from nucleus of sixth nerve to nucleus of third nerve on opposite side. The existence of these fibers necessitated by symptoms and signs in nuclear paralysis. It referred to the demonstration of their existence by Graux, and reported two cases observed by the author, one probably from cortical irritation, the other probably from a nuclear lesion. The author presented a rearranged scheme to indicate the position of lesion by the direction of the eyes.

Dr. M. D. Stevenson, Akron, said that muscular spasms due to irritation and paralysis due to destruction furnished the same local diagnosis; that paralysis might be due to a peripheral nuclear or central lesion; that conjugate paralysis must be nuclear or central. In nuclear paralysis there was suspension of voluntary and involuntary movements and nerve and muscle degenerate at an earlier or a later period. Convergence was supposed to be controlled by a central collection of nerve nuclei common to both sides, whereas the internal rectus, in conjugate movements of both eyes was controlled by a collection of nuclei connected with the nucleus of the opposite sixth nerve.

Dr. Alexander Duane, New York, agreed with Bernheimer that there is no anatomic foundation for Graux's view and thought the clinical facts better explained by the actual anatomic conditions.

"Incurable Eyestrain." Dr. George M. Gould, Philadelphia.

The author said that it was sometimes impossible to relieve eyestrain, because impossible to reach causes. This should be understood, so that (1) the occupation and use of the eyes may be regulated to lessen symptoms; (2) that other physicians may not err in treatment which can not reach the causes. Causes of incurable eyestrain: (1) Certain congenital anomalies, such as albinism, colobome and malformations which render the eye imperfect optically; (2) some high degrees of ametropia; (3) the sequels of inflammatory disease, traumatisms, etc.; (4) amblyopia or other incurable injuries resulting from uncorrected ametropia; loss of accommodation; subnormal accommodation, etc.; (5) heterophoria or heterotropia of too long standing to be relieved by the ordinary methods; (6) interruptions or contradictions of the normal coördinations of dextrocularity and dextromanuality; (7) incurable cerebral or nervous diseases, such as paralysis, paresis, myosis, nystagmus, tremor; (8) diseases rarely of the general system or adjacent organs; (9) unhygienic use, overuse or abuse of the eyes which we can not stop.

Dr. Peter A. Callan, New York, deprecated that Dr. Gould totally ignored or slurred over the operative side of ophthalmology. He did not agree with the writer that lack of proper-fitting glasses was productive of cataracts.

Dr. George M. Gould (closing the discussion) said that Dr. Risley had long contended that cataracts were due to chorioidal disease, and he believed that chorioidal disease might be due to eyestrain. He had never seen a case that had worn proper glasses that had developed cataract.

"Some Personal Experiences in the Use of Electricity in Ophthalmic Practice." Dr. W. Franklin Coleman, Chicago.

The paper treated chiefly of chronic cases, usually intractable, with inflammatory exudates and functional or organic disease of nerve tissue. Phenomenal recoveries, other therapeutic means having failed, demonstrated that electricity can favorably modify tissue changes which medication is powerless to affect. Superior electrolytic effect of galvanism indicated its use where exudates formed the chief pathologic factor. The writer said that no disease seemed to yield more certainly and completely to this treatment than vitreous opacity. The sinusoidal current is used in primary optic atrophy; there was improvement in 66 per cent. of cases. In muscular paralysis the interrupted galvanic current was used, as it produced more profound contraction than the faradic, while it furnishes the electrolytic and nerve-stimulating effects which the latter lacks. Contrary to the views of most oculists, the author believed that his experience aids in demonstrating that electricity has justified its claim to usefulness in ophthalmic practice.

Dr. S. L. Ziegler, Philadelphia, thought it unfortunate that electricity, which was accomplishing so much in neural therapeutics, should be looked upon with skepticism by the ophthalmologist. He thought that the evidence should convince every careful and unbiased observer that electricity should be accorded a most honored position in ocular therapeutics.

Dr. Leartus Connor, Detroit, thought that, as a general thing, the use of electricity had been disappointing and that it took up too much of the time of both patient and physician.

Dr. Lucien Howe, Buffalo, asked if there were any statistics where the same condition existed in both eyes and the treatment was applied to one and not the other.

Dr. H. V. Würdemann, Milwaukee, said the high-tension galvanic current was of great value in securing absorption of exudates within the eyeball in cases of chorioiditis and uveitis and for stimulation of nutrition in cases of partial optic-nerve atrophy.

Dr. E. J. Brown, Chicago, reported a case of amblyopia improved after three weeks' treatment.

Dr. George F. Keiper, Lafayette, suggested the human finger as the best electrode, allowing the current to pass through the body by the finger into the patient's eye.

Dr. W. F. Coleman, in closing the discussion, said that his cases had been chronic cases, while Dr. Ziegler had referred to acute cases. He gave a word of warning as to the use of the graphite rheostat, that made of a combination metal being much better.

"The *X*-ray in Ocular Therapeutics." DR. G. ORAM RING, Philadelphia.

The essayist considered the question of the application of Roentgen therapy in superficial epithelioma involving the eye and ocular adnexa, rodent ulcer, carcinoma, orbital sarcoma, trachoma, vernal conjunctivitis and a few other forms of ocular disease. He reviewed the literature on the subject and the previously unpublished opinions of well-known ophthalmologists, and concluded that it made a great advance in the treatment of superficial epithelioma and rodent ulcer, and would usually effect a cure; if unsuccessful, then electro-chemical sterilization could be used and finally excision; *x*-ray treatment had proved a value in the more extensive orbital carcinoma, but it was conceded that the deeper the growth the less favorable the result; it exerted an anodine influence on malignant disease of the eyelids and orbit; progress in the treatment of trachoma had been effected by the *x*-ray therapy; evidence indicated its value in vernal conjunctivitis.

Dr. George S. Dixon, New York, considered the paper a very valuable contribution to the subject. He had been forced to the conclusion that the earlier ideas must be toned down considerably. His experience with epithelioma of the lids had not been satisfactory and he cited a number of cases.

Dr. W. F. Coleman, Chicago, had had good results in trachoma.

Dr. Charles S. Bull, New York, thought it the most valuable remedy we had in the treatment of superficial carcinomata; the deeper the disease became, the less value, in his opinion, was this treatment.

Dr. John E. Weeks, New York, referred to the tolerance of the retina to the *x*-ray; it was not affected, apparently.

Dr. Edward Jackson, Denver, had had a case of recurrent epithelioma of the lid, recurring within a few months after excision, treated with the *x*-rays, that had now been free from evidence of disease for five years. As to trachoma, he thought the bad cases that had shown resistance to other methods had not been benefited by the *x*-ray.

Dr. A. R. Baker, Cleveland, had had a number of cases of epithelioma in which the *x*-ray had brought about recovery. He had had several cases of sarcomatous tumors involving the sinuses in which there was no benefit except the relief of pain.

Dr. John Green, Jr., St. Louis, had had recently under observation a woman of 65, operated upon thirteen years ago for mammary cancer; about two years ago the disease recurred at the inner angle of the right eye; under *x*-ray treatment the tumor had subsided.

Dr. C. A. Wood, Chicago, referred to a case of secondary gliosarcoma. He advocated the use of the *x*-ray treatment as a relief for pain.

Dr. C. D. Wescott, Chicago, cited a case of sarcoma of the orbit, in which the ray was used three months, with recovery.

Dr. W. B. Marple, New York, in a case of recurring sarcoma, in which an exenteration of the orbit was done and the x-ray applied to the orbital tissues, had found no effect as to the recurrence of the sarcoma.

Dr. William Sweet, Philadelphia, referred to the necessity for drainage for the tissue destroyed by the x-ray, as otherwise patients might develop septicemia. He thought the use of the x-ray in the treatment of trachoma a waste of time.

Dr. L. W. Fox, Philadelphia, had had good results in the epitheliomata; no results in the treatments of trachoma.

Dr. C. L. Leonard, Philadelphia, said that in the deeper growths we were not able to secure results; we could hardly expect to reach the deep-seated growths that had already produced metastasis.

Dr. D. L. Edsal, Philadelphia, referred to the general effect upon metabolism and possibilities for harm of the x-ray; he considered the x-ray one of the most violent therapeutic measures we have and thought it should be used with great care.

"Ocular Injuries from Foreign Bodies, with a Report of Four Hundred and Twenty Cases." DR. WILLIAM M. SWEET, Philadelphia.

The writer considered the importance of early diagnosis by the Roentgen rays in every eye with lowered vision following injury by a foreign body; the results of magnet extraction of iron or steel from the vitreous through an incision in the sclera; the rarity of retinal detachment as a direct result of operation; magnet extraction complicated by fibrinous exudation surrounding the metal in old injuries; traumatic iridocyclitis following frequent insertions of the magnet point into the vitreous; the per cent. of eyeballs lost from panophthalmitis was small; large number of traumatisms with lodgment of the body in the eye; the successful cases of extraction that have retained useful vision for many years.

Dr. Howard F. Hansel, Philadelphia, advocated the procedure of localization before use of the magnet and subsequent extraction through the cornea of bodies situated in the lens or anterior to it and through an opening in the sclera for those posterior to the lens, but he did not believe localization indispensable to the successful management in many cases. In cases of recent injury he thought it safer to allow non-magnetizable particles to remain in the eye unless easily accessible rather than probe the vitreous with forceps or other instruments.

Dr. J. Ranly, Cincinnati, had devised a method of attaching a flexible extension arm to the magnet which could be moved in any direction.

Dr. W. F. Coleman, Chicago, had devised an arrangement with a ball and socket joint which permitted of movement in any direction. He did not advocate Haab's method of removing the foreign body through the anterior chamber.

Dr. Frank Todd, Minneapolis, had practiced Haab's method and had been surprised at the ease with which it could be used; he thought it had certain advantages over removal through the sclera where the body could not be observed.

Dr. S. D. Risley, Philadelphia, said we should differentiate between injuries resulting from the foreign body itself and those caused by efforts for its extraction. He deprecated the idea of removing the foreign body by making a new path through the vitreous, thereby increasing the possibility of infection; it should be extracted by the shortest possible path, as indicated by localization.

Dr. William H. Wilder, Chicago, deprecated the practice of using the magnet at once to make a diagnosis of foreign body in the eye; he thought a radiograph should be made first, and preferably with a localizing apparatus.

Dr. Edward Jackson, Denver, referred to a case in which a splinter of steel had caused a wound in the cornea, anterior capsule and posterior capsule; extracted with the Johnson magnet through the sclera, followed by clearing up of the lens.

"Autointoxication in Relation to the Eye." DR. GEORGE E. DE SCHWEINITZ, Philadelphia.

This paper reviewed the modern ideas on the subject and considered the toxins produced by intestinal decomposition; the relationship to certain diseases of the cornea, sclera and uvea; the possible relationship to amblyopia and retrobulbar neuritis, acute and chronic. He said toxins may be accessory causes and the means by which the symptoms are continued. even when the well-known exciting cause has ceased to be operative. He went over the researches of Dr. Edsal and himself in regard to the relationship of enterogenous decomposition products to the development and continuance of so-called toxic amblyopia when this is produced by tobacco and alcohol. The probable relationship of autointoxication to certain postoperative phenomena, notably postoperative delirium, iridocyclitis and glaucoma. Many illustrative cases were quoted. The writer said that great caution was needed in attributing these cases to autointoxication, but it should not be forgotten in their clinical study. Accurate chemical analysis of the urine secretions under all the conditions named was necessary.

Dr. Casey A. Wood, Chicago, thought that Dr. de Schweinitz's work offered an explanation for a great many obscure conditions in the eye. He referred to the possibility of carrying these experiments further with monkeys instead of dogs.

Dr. Charles S. Bull, New York, thought that too little attention had been given to the connection existing between certain obscure diseases of the eye and intestinal autointoxication. He had seen a number of cases within the last few years in which the gastrointestinal factor had been the sole contributing cause.

Dr. W. B. Marple, New York, agreed with Dr. Bull as to the connection between these obscure diseases of the eye and autointoxication, and referred to several illustrative cases.

Dr. William C. Posey, Philadelphia, referred to two cases in which autointoxication was the causal factor and in which the patients improved on proper diet and eliminant treatment.

Dr. John E. Weeks, New York, referred to two cases, one of neuritis and one of retinitis due to autointoxication which cleared up under the use of intestinal antiseptics.

Dr. S. D. Risley, Philadelphia, said that the comfort of the patient and the removal of trouble in some of these cases by attention to the gastrointestinal tract was amazing.

Dr. Edward Jackson, Denver, mentioned a case of amblyopia and commencing nerve atrophy that cleared up after attention to the gastrointestinal tract. He had also had three cases of chronic relapsing iritis that responded only to this treatment.

Dr. John Green, Jr., St. Louis, reported a case of glaucoma simplex that recovered only after attention had been paid to the gastrointestinal intoxication.

"The Eye Injuries of Independence Day." DR. ROBERT L. RANDOLPH, Baltimore.

At the Atlantic City session he had called attention to the frequency of eye injuries on Independence Day. Ophthalmologists probably see more such cases than other physicians, for wounds of other parts of the body are treated by physicians, while eye injuries are treated by a limited few in the larger cities and towns. Their observations had suggested the taking up of the subject by ophthalmologists with the view of making it punishable by a fine either to sell or to set off fireworks in the city. Great improvement in the condition of affairs had been brought about in Baltimore with the help of the newspapers and co-operation of the police department.

Dr. G. C. Savage, Nashville, discussing this paper, thought any laws regarding this subject should apply to all holidays as well as to Independence Day, and said that in his part of the country there had been more injuries of this kind on Christmas Day than on the Fourth of July. At the present time, however, no fireworks were allowed on the street on any holiday.

"Injuries to the Eye with Birdshot." DR. W. B. MARPLE, New York.

The paper reported two cases of double perforation of the eyeball from birdshot. The necessity of depending on the skiagraph in estimating the prognosis was insisted upon. The prognosis depended not only on the location of the injury, but on whether one or more shot are lodged within the eyeball or have passed through the eyeball and from their location in the orbit produced pressure symptoms and impairment of function. The writer said that shot coming from a gun are usually sterile and the lead in itself is not apt to set up irritation. He thought that the wound in the eyeball should not be probed and an effort should be made to keep out infection.

Dr. George E. de Schweinitz, Philadelphia, agreed with Dr. Marple as to the importance of x-ray examination in these cases, particularly for the purpose of ascertaining whether or not the shot had remained within the globe or passed through into the orbital tissue. If infected iridocyclitis was present he thought enucleation in most instances would be required.

Dr. H. V. Würdemann, Milwaukee, said that lead shot were not only aseptic, but antiseptic, which accounted for the few infected wounds of shotgun injuries. He was of the opinion, however, that all eyes containing birdshot and having little or no vision should be enucleated, for the reason that they later undergo changes that demand enucleation.

Dr. Edward Jackson, Denver, referred to the difficulty of extracting birdshot from the eyeball, the shape of the shot preventing it from becoming fixed so that it moves away from the instrument.

Dr. Robert L. Randolph, Baltimore, thought that experiments had shown that birdshot are not always aseptic.

Dr. S. D. Risley, Philadelphia, could not recall a single instance in which infection had followed injury to the eye from birdshot, but chemical changes take place which had proved serious and required removal of the eyeball.

Dr. Chas. H. Beard, Chicago, advocated the removal of the shot when within the anterior chamber.

Dr. William Sweet, Philadelphia, called attention to the necessity for considering the diameter of the eyeball, as to whether 24 or 26 mm., in localizing these foreign bodies.

"Exhibition, by Means of the New Opaque Projector, of Original Colored Ophthalmoscopic Drawings." DR. CHARLES H. BEARD, Chicago.

This series of pictures referred mainly to the so-called physiologic or congenital fundus anomalies. First was shown the normal fundus, and certain peculiarities in connection with it were described. Then followed anomalies of the optic nerve, of the retina and of the chorioid in succession, or of two or more of these combined. As occasion offered the pathologic appearances were shown that are apt to be mistaken for the physiologic and the distinguishing features were pointed out.

"The Ripening Operation for Immature Senile Cataract: Its Place." DR. FRANK C. TODD, Minneapolis.

The author discussed the conditions under which the ripening operation is justifiable, as compared with the extraction of immature senile cataracts. The opinions of many ophthalmologists in the United States were quoted and answers to circular letters were given. The writer concluded that if we grant the success and safety claimed by those of much experience in irrigation the operation of ripening is indicated (1) in case of immature cataract (not mentioned as contraindicated), in which a preliminary iridectomy is to be performed; (2) in those patients who would not be likely to behave well during the extraction, thus preventing the operator from performing much toilet or from practicing irrigation. If irrigation is not practiced, trituration of the lens would be indicated in all patients with immature senile cataract under 60, in whom, for reasons mentioned, relief is required.

"Some Important Considerations in the Extraction of Cataract." DR. MARK D. STEVENSON, Akron, Ohio.

The writer considered the necessity of thorough examination and preparation of the patient and gave description of screens for the patient's and operator's breath and saliva. He advocated the large, completely bordering conjunctival flap which is easily folded on the cornea, described the method of obtaining it, the position and size of the sclerocorneal incision, where to grasp the iris when withdrawing it, and described the advantages of sphincterotomy over the simple operation, sphincterectomy, iridectomy or peripheral buttonhole in iris.

"Cataract Extraction with Modified Iridotomy." DR. F. H. VERHOEFF, Boston.

The operation advocated by the writer consisted essentially in making a buttonhole at the root of the iris and incising the iris from this opening to the pupil by means of iris scissors. The lens is then extracted in the usual way or in its capsule. The operation offers the advantages of both the simple and combined operations without their disadvantages, according to the opinion of the writer. The lens, he said, is removed with the same ease as in the combined operation and cortical matter is readily expressed. The excision of iris tissue is made where it will be most effective in preventing iris prolapse and at the same time do the least damage from an optical standpoint.

"The Use of the Secondary Cataract Knife." DR. MELVILLE BLACK, Denver.

The writer described a probe-pointed secondary cataract knife which he presented. It is fashioned after a Graefe knife, except that it has a probe point. Mackenzie, he said, used a probe-pointed secondary knife more than fifty years ago, but of late years it had fallen into disuse. The knife was used by the author for enlarging the angles of the wound when found to be too small or for making dissection when the anterior chamber is evacuated before a counter puncture is made and for completing dissection when the iris has fallen in front of the knife before the section is finished.

In discussion, Dr. M. Wiener, St. Louis, advocated Major Smith's method of removing the lens in capsule.

Dr. A. E. Bulson, Jr., Fort Wayne, in discussing Dr. Stevenson's paper, said that the pre-operative attention and precautions recommended by the essayist were excellent from a theoretical standpoint, but in practice were apt to unnecessarily increase the anxiety of the patient, and he questioned if so much attention was indicated. He advocated the wearing of a strip of folded gauze over the mouth and nose to prevent possible infection from the breath, and the covering of the head with a sterile cap to prevent infection from the hair. He advocated the use of artificial condensed light. For the average operator he thought the combined operation the easiest to perform and that, all things considered, it gave the best results.

Dr. Allen Greenwood, Boston, in discussing Dr. Verhoeff's paper, said the operation advocated was an extension of the buttonhole operation devised by Chandler for preventing iris prolapse. He did not agree with the essayist that the operation combined all the advantages of both the simple and combined operations without their disadvantages and thought that a small iridectomy was just as effective.

Dr. Casey A. Wood, Chicago, in discussing Dr. Black's paper, advocated the use of the knife in cases where the iris fell over the blade, rather than attempting to turn the blade of the Graefe knife.

Dr. L. Webster Fox, Philadelphia, thought the knife devised by Dr. Black would be very useful in many cases.

Dr. Oscar Wilkinson, Washington, referred to the use of a blunt-pointed knife in cataract operations described by Dr. F. Bischoff, London, in 1793, in his little book, entitled, "A Treatise on the Extraction of Cataract."

Dr. Wendell Reber, Philadelphia, advocated the combined operation for cataract extraction and deprecated the use of Major Smith's operation.

Dr. S. L. Ziegler, Philadelphia, advocated the use of the keyhole iridectomy being the best.

Dr. A. R. Baker, Cleveland, thought that most of the older operators had abandoned the ripening operation.

Dr. C. W. Hawley, Chicago, had done a number of ripening operations with success. He would not attempt to extract in capsule.

Dr. W. B. Marple, New York, in speaking of Dr. Black's knife, said that sometimes cataract knife might be inserted upside down, but there was little difficulty in turning it.

Dr. E. E. Jack, Boston, had done nine or ten extractions in capsule, none of which had been failures.

Dr. E. E. Holt, Portland, thought the older operators had abandoned the ripening of immature cataracts, although every one might do it in certain cases. In the preparation of the patient he advocated the use of bromid of potassium or morphia the night before.

"The Value of Myotics in the Treatment of Chronic Simple Glaucoma." DR. WILLIAM CAMPBELL POSEY, Philadelphia.

This paper was a plea for the continuous and intelligent use of myotics in the treatment of chronic glaucoma and referred to their great value in this class of cases, notwithstanding the generally accepted view of their comparative uselessness. The writer spoke of the desirability of their continuance in the early stages, even when the diagnosis of glaucoma had been confirmed. He reported a case showing remarkable preservation of vision in an eye, the seat of advanced glaucoma, by continuous use of myotics over a period of twelve years. The power of eserin and pilocarpin in chronic glaucoma to preserve the unoperated eye from glaucomatous attacks after iridectomy on its fellow was discussed, and the necessity for maintaining the pupils in a state of almost maximum contraction. He considered the proper dosage and the best manner of administering both eserin and pilocarpin and the choice between them in various types of cases.

Dr. John E. Weeks, New York, thought that better results might be obtained with myotics if their use was persisted in, as advised by Dr. Posey, but not the least of the difficulties was the lack of perseverance on the part of the patient. If for any reason the treatment could not be satisfactorily carried out, or if on subsequent examinations there was a diminution of the field for form or color, he would urge iridectomy.

Dr. Charles S. Bull, New York, was in full accord with the statement of Dr. Posey that operative procedures were always to be deprecated when other means are equally valuable. He thought iridectomy almost valueless in chronic simple glaucoma unless done early in the progress of the disease. For some years in the more advanced cases he had followed the line of treatment indicated by Dr. Posey and had been at least satisfied with the results.

Dr. George E. de Schweinitz, Philadelphia, thought Dr. Posey would find many, if not the majority, of surgeons in accord with him in so far as his estimate of the value of myotics was concerned in the treatment of this disease, and also find many surgeons totally averse to iridectomy in the treatment of so-called chronic glaucoma. Personally he was perfectly satisfied of the great value of myotics in the treatment of this disease, no matter at what age, and believed they should be continued persistently as long as they did good, but that it was safe to use them only with the patient under control and with frequent tests of the light sense, the field of vision, the color sense and particularly for the presence of scotomas.

Dr. W. H. Wilder, Chicago, did not believe that chronic glaucoma cases were ever benefited by iridectomy, but that many of them were injured by the operation. The keynote of the whole matter was that we should study the changes going on in the vessels and the increased arterio tension; that constitutional treatment was more important than iridectomy.

Dr. Peter Callan, New York, did not think that iridectomy did any harm if properly done and he advocated its use.

"So-called Leucosarcoma of the Iris." Dr. E. V. L. Brown, Chicago.

The writer considered that Ribbert's theory of the origin of all uveal sarcomas from chromatophores is worthy of most careful further consideration. Second, that the analogy between the round, spindle and star-formed cells which proliferate in sarcoma, or the spindle and star-formed cells found in the embryonic chorioid, is incomplete, because a round cell first stage has not been proved to exist in the latter. Third, that it is more reasonable to suppose that the "cell reversion" takes place to any one of these forms of sarcoma, analogous to the relations which obtain between embryonal and pathologic conditions in glioma, than it is to suppose that lower cell forms are transformed into higher cell forms. Fourth, that so-called leucosarcoma of the iris offers a more favorable opportunity for the study of the chromatophore theory than does sarcoma of the chorioid, because here the normal chromatophore is much less heavily pigmented than in the normal chorioid or than the chromatophore in the iris. Pressure, too, destroys the normal cell. Fifth, the term leucosarcoma should be retained, but used only in reference to the clinical appearance of iris sarcoma.

Dr. F. H. Verhoeff, Boston, thought that the observations of Dr. Brown were valuable in confirming the facts upon which the theory of Ribbert is based, although they still left the theory itself open to doubt. He did not regard as valid the objection to Ribbert's theory made by Dr. Brown that the origin of chromatophore had not been traced as far back as round cells, for it was recognized that cells of all kinds when in an undifferentiated stage tended to assume a round form.

Dr. H. V. Würdemann, Milwaukee, said that for purposes of diagnosis and prognosis we must discriminate between these leucosarcomata and the malignant sarcomata in a clinical way. He had found chromatophores in all the cases of uveal sarcomata he had examined in recent years. Cells containing many chromatophores or fusiform elements were more prone to reproduce themselves, and hence such tumors were more prone to recurrence than those containing cells more like the normal elements of the body, and, therefore, from the microscopic diagnosis a more favorable prognosis could be offered in the cases of these tumors containing chromatophores.

Dr. E. V. L. Brown, Chicago, in closing the discussion, was in accord with Dr. Verhoeff as to the uncertainty of this theory, but thought the burden of proof was for some one to show that there is a leucosarcoma that does not contain chromatophores.

"The Differential Diagnsis and Prognosis of Tumors of the Uveal Tract." Dr. H. V. Würdemann, Milwaukee.

This paper treated the subject from a clinical standpoint with reference to microscopic diagnosis. Tumors were considered under the headings of cysts, angioma, myoma, sarcoma, metastatic sarcoma and carcinoma. All malignant tumors were considered as really sarcoma or carcinoma. The writer said that the division of carcinoma into leucosarcoma and melanosarcoma is microscopically incorrect, but necessary from a macroscopic, clinical, diagnostic and prognostic standpoint, as the less pigmented tumors offer a less unfavorable prognosis. In diagnosis stress was laid upon transillumination of the eye. The literature was collated to date and many original observations included.

Dr. Charles S. Bull, New York, said there was little to criticise and much to commend in Dr. Würdemann's presentation. He agreed with Würdemann that for purposes of diagnosis and prognosis Scheick's views that these tumors are all to be classed as melanosarcomata could not be accepted. When it came to a question of prognosis Scheick's conclusions were too far reaching. He thought the method of transillumination in examination of tumors of the ciliary body and of the anterior parts of the fundus was of considerable value. He differed with the essayist as to tubercles of the chorioid being accompanied by inflammatory reaction; he had rarely seen any sign of accompanying inflammation.

Dr. E. S. Thomson, New York, advocated the use of the Würdemann lamp as being more easily managed and remaining cooler than the Sach's lamp.

Dr. Edward Shumway, Philadelphia, placed himself with Dr. Bull and Dr. Würdemann against the theory of Scheick that all the sarcomata of the chorioid are developed from chromatophores.

Dr. O. F. Wadsworth, Boston, thought with regard to the prognosis in cases of sarcoma of the chorioid that the estimates given by Dr. Würdemann were altogether too favorable; in his experience most of the cases he had been able to follow had died.

"The Treatment of Progressive Atrophy of the Optic Nerve, Due to Acquired Syphilis, by Subconjunctival and Intravaginal Injections of Sublimate of Mercury." DR. CHARLES S. BULL, New York.

Twenty-five cases of simple atrophy of the optic nerve due to acquired syphilis were treated by this method. Cases of tabes and disseminated sclerosis were excluded. All cases had previously undergone a thorough antisyphilitic treatment by mercury and potassium iodid and vapor baths, and also been subjected to hypodermic injection of strychnia. Subconjunctival injections, preceded by injection of cocain, always made far back beyond the equatorial region, were employed. Strength of sublimate solution varied from 1/5,000 to 1/2,000. Ten minims was the minimum amount injected; maximum was 20 minims. Injections were usually made on alternate days, and if no improvement followed the tenth injection, treatment was abandoned. No permanent improvement of the vision in any case; only in three temporary improvement. This method of treatment for these desperate cases of syphilitic atrophy of the optic nerve had added nothing of value to therapeutics.

Dr. S. D. Risley commended the writer's courage in carrying out these experiments clinically, although he had arrived at negative results. He advocated the subconjunctival salt injections in diseases of the anterior segment of the globe, and had seen the entire uveal tract clear up under the action of repeated prudently made subconjunctival injections; not of solutions of mercury, but of the so-called physiologic salt solution.

Dr. A. A. Hubbell, Buffalo, had had some experience along this line, though not so systematically persisted in as by Dr. Bull. His results, like those of Dr. Bull's, had been entirely negative.

"Paraffin Plates as an Aid in Operations for Extensive Symblepharon and the Restoration of Cul-de-Sacs for Prothesis." Dr. William H. Wilder, Chicago.

The writer referred to the difficulty of successful treatment of severe cases of symblepharon and the necessity of grafting into the new cul-de-sac some form of epithelial membrane. Mucous membrane was not so available and not so good for this purpose as thin Thiersch grafts from the skin. These must be perfectly coapted and held in place, and this could best be accomplished by some form of plate. He described the different methods in use and the author's method, which consisted of the use of metal plates coated with paraffin. The advantages claimed for this method were its adaptability, the certainty with which the graft is applied and the lack of danger to the cornea from the plate.

Dr. Charles H. May, New York, had had no experience with the metal plate, though in one case he had tried Hotz's plan of using a lead plate. He had been well satisfied with the porcelain supports. As to the grafts, he believes the Tiersch grafts were generally preferable to the Wolff grafts, though not prepared to say that the former should always be used. He agreed with Dr. Wilder that no sutures were necessary.

Dr. C. W. Hawley, Chicago, had seen Dr. Wilder's plates used in two cases with very desirable results. He had been very well satisfied with the Thiersch grafts.

Dr. John E. Weeks, New York, referred to the necessity for the flap having attachment to the periosteal tissue in order to maintain the depth of the cul-de-sac; another essential was that the plate should be sufficiently large to carry the graft to the depth of the groove in case sutures were not employed. He thought Dr. Wilder's plate met that indication fully.

Dr. S. D. Risley, Philadelphia, said he knew of nothing we attempt in which success depended so much upon technic as in this operation. He had tried many methods and believed this would be a decided improvement. He was very fond of the Tiersch grafts, which he carried to the parts from the razor without putting into any solution.

Dr. C. D. Wescott, Chicago, had had the privilege of assisting Dr. Wilder and added his testimony to the simplicity of the method as compared with others.

"The Relation of Diseases of the Nasal Accessory Sinuses to Disease of the Eyes." **Dr. Frank A. Brawley**, Chicago.

The essayist considered that periodical attacks of unilateral headache are practically always of nasal origin, involving the frontal and ethmoidal sinuses, and usually non-suppurative in type. Absorption of the contained oxygen by the lining membrane of the cells brings about a vacuum, congestion and swelling of the membrane follow, producing irritation of the nerve endings, with resulting reflex ocular disturbances. An active congestion occurs in the orbital tissues as a result of a blocking of the branches of the ophthalmic artery which supply the lining membrane of these cells. Application of adrenalin to affected middle turbinal was a specific means of diagnosis of this condition by re-establishing air communication between nose and sinuses, with resulting relief of subjective symptoms. A specific treatment was resection of anterior third of affected middle turbinal, with consequent exposure of the exits from these sinuses and permanent relief from subjective symptoms.

Dr. Nelson M. Black, Milwaukee, agreed with Dr. Brawley that these more obvious and striking forms of interdependent diseases have for a long period been recognized and treated, but it was easily seen that this relation had only been recognized by having the presence of the nasal condition forced upon the observer either by the existence of a profuse discharge or the patient's calling attention to some existing nasal condition.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, May 4, 1906.

Priestley Smith, F.R.C.S., President, in the chair.

Mr. Mackenzie Davidson read a paper on "Radium in the Treatment of Rodent Ulcer."

He gave a short description of radium and its source, and then gave details of how he applied it and the results he had obtained in the somewhat large number of cases which he had had under his care. As a rule he found it unnecessary to apply the radium very frequently. In many cases cure had been effected with one or two applications, with several weeks' interval between the applications. In other cases more frequent application was necessary. The radial activity of different specimens of radium varied, but it was possible by means of an electroscope to measure this. He preferred to use it when encased in a sealed glass tube, for the glass shut off some of the harmful rays which would burn the skin and which were of no use for destroying the rodent cells. The power of radium was for practical purposes a fixed quantity in any one specimen, so that the dose given was absolutely known; in this way it differed considerably from the *x*-rays, which were not constant, but depended upon a variety of circumstances.

Mr. Ransom Pickard, Exeter, described a case of implantation cyst containing wood fibers. The patient was a girl, aged 14, and the tumor had been noticed for nine years. It was 3 mm. in diameter and was situated below the pupil. The growth was removed and its base was found to be composed of granulation tissue containing three wood fibers of coniferous origin. The tumor consisted of epithelial cells and contained several cysts, some of which were formed by degeneration of the cells and others by the formation of fissures. There was no history of injury to the eye, the cornea was quite normal, but in all probability the cornea had become perforated ten years ago by a fine splinter, for at that time she fell and struck her nose against a table.

Messrs. Treacher Collins and Johnson Taylor, Norwich, described a case in which there was a cystic swelling occupying the position of the left eye and apparently mainly formed by a bulging forward of the conjunctiva of the upper lid. It was present at birth and had steadily increased since.

Mr. Johnson Taylor first saw the child when 3 weeks old. He then tapped the cyst with a fine trochar and canula; it refilled the following day. When next seen, about a year later, it had increased considerably in size in all dimensions; it stood out two and one-half inches from the orbital rim and gave a most unsightly appearance. Blood and discharge had also been exuding from it for two months. Under a general anesthetic Mr. Johnson Taylor removed it entirely and handed it over to Mr. Treacher Collins for examination.

The examination showed that the cyst was due to an enormous distention of the whole globe, the sclerotic forming its outer wall.

The inner coat corresponded to the retina, but in no place did that portion derived from the secondary optic vesicle lie in contact with that developed from the outer layer. The anterior portion of the cyst was lined by the former and the posterior part by the latter. The cavity of the cyst was composed of a space between these two layers, the cavity of the primary optic vesicle. The explanation of the formation of the cyst was apparently the imperfect involution of the primary optic vesicle which forms the secondary optic vesicle. There had been some attempt at involution, both anteriorly and below. Anteriorly the inner wall of the cyst was prolonged backward in a fold, at the bottom of which was a rudimentary lens, so that at one stage there must have been some downgrowth of surface epiblast. Below was a mass of atypically developed vitreous, and the expansion of the cyst below must have been checked by this upgrowth of mesoblast, hence the chief distention upward into the upper eyelid. As the whole of that portion of the retina which normally forms the inner layers was in the anterior part of the cyst, it is not surprising that no optic nerve was developed. The lens showed a defect in its posterior capsule, and through this gap mesoblastic tissue had extended forward and become mixed with the lens fibers. A nodule of hyalin cartilage was found in the sclerotic at the posterior part of the specimen.

DETROIT OPHTHALMOLOGICAL AND OTOLOGICAL CLUB.

Meeting of May 1, 1906.

"Orbital Cellulitis: Recovery." By Dr. G. L. Renaud, chairman for the evening.

On Feb. 11, 1906, I was called in consultation to see Miss Cora C., aged 13, who was suffering from inflammation of eye, as stated to me. The history of the case was as follows: Four days previously she had slight chills and fever and some headache. This general malaise continued and two days later a slight chemosis of the lid of left eye was apparent. On morning of February 11, the fourth day, this suddenly assumed such an alarming aspect that her physician advised calling in a specialist. I saw the case that evening. The temperature at this time was 101.5. The chemosis of lid was very intense, it being almost impossible to lift the upper lid the slightest amount, so as to afford a view of the lower margin of corner. The eyeball was seen to be much protruded and immobile. The chemosis of the bulbar conjunctiva was so intense that it protruded between lids at their outer half, protruded portion being at least the size of a lima bean. The diagnosis of orbital cellulitis was made and early thorough incisions recommended. Icecloths were applied constantly that night. Next morning the lid was opened freely into socket at two different points and free hemorrhage followed. No pus showed at this time. The next twenty-four hours showed a marked subsidence in engorgement. By forty-eight hours later, however, the swelling was more intense and temperature was 102, and, feeling confident that a breaking down had occurred at a certain point, another free incision was made under anesthesia deep into orbit at that point and considerable pus liberated. About every second day the lid was freely incised at different points and a great amount of pus continued to be relieved from successive parts of the orbit. For nine consecutive days, under short chloroform anesthesia, the dressings were done, pus being completely removed and antiseptics injected. One incision was over the canthus and one over the inner extremity of the lower lid. The temperature on about the seventh and to the ninth day remained 104, and at the latter time the parents gave up hope of the child's life and wished to desist from further measures. On my assurances that a favorable turn would probably soon set in, the operation was repeated on that day, and from that time the improvement was continued and uninterrupted. Three days later the temperature was down to 101 and swelling greatly reduced, although slight amount of pus was removed for last time on that day. Hot cloths were applied continuously during the period of greatest danger and gradually left off as improvement continued. The swelling of the lid has slowly but gradually subsided, the changes observable in a week's interval, however, being marked. When last seen, April 18, the improvement was still continuing, the lid being now raised to expose one-half of cornea, although still quite heavy.

The conjunctival hypertrophy slowly subsided, this being aided, undoubtedly, by daily applications of 50 per cent. solutions of argyrol, which family carried out. The vision is 20/20, and I am in hopes no atrophy of nerve will follow. As regards general medication, for more than a week, under direction of her physician, she was taking 15 grains triple bromids every two hours, and codeia ¼ to ½ every one to two hours in order to quiet patient, also quinin and iron for short time.

The numerous free incisions through which drainage was encouraged from all parts of the orbit practically cured a most unusual and severe type of orbital abscess in a very short space of time.

"Paresis of Inferior Rectus and Inferior Oblique Muscle of Left Eye. Due to Traumatism."

Mr. Chas. D., aged 48, consulted me April 3, 1906, complaining of diplopia. States that he had a severe fall a week previously, which was followed by this disturbance, especially troublesome when he tries to use the eye. The phorometer showed L. hyperphoria of 9. About one-half of exophoria. When looking straight ahead the diplopia was lessened if head was lowered and increased when raised, which showed the vertical muscle affected to be the inferior rectus of left eye rather than superior rectus of right. The lower image that was seen by left eye was decidedly tilted; the upper extremity toward the left showing the vertical axis of eye to be inclined to the right at its upper extremity, which would be occasioned by a paresis of inferior oblique. This latter complication made the prescribing of proper lenses somewhat difficult, as the obliquity of images seen with left eye prevented fusion of images when sufficient of the horizontal deviation was corrected. As the patient was a presbyope, he was prescribed Xl. 50 D. S. prism 2, base up, before O. D. and prism 8, base down, before left, with which combination he managed his close work fairly well.

There is probably nothing very unusual about this case, but it was of interest to me, as I rarely encounter cases of marked affection of oblique muscle.

Discussion.—Dr. Gillman reported a case which showed great swelling of the face, a moderate amount of exophthalmus, a typical stauungs-papillæ and blindness. This was accompanied with great pain. The condition cleared up under mercurial inunctions and iodid of potash.

Dr. Parker dwelt on the necessity for radical treatment in these cases. The pus must be searched for until found.

Dr. Smith emphasized the necessity of making an incision clear to the apex of the orbit. If the case is seen early enough the incision can be made through the lower cul-de-sac, but later it has to be made through the skin of the lower lid. He has never had to make a second incision. although it is sometimes necessary to reopen the original one.

Dr. L. Connor reported a case of orbital cellulitis in a child where the wound of entrance was a slight tear in the conjunctiva, about one-quarter of an inch long. This was followed by a most malignant infection, which was complicated by multiple metastatic abscesses elsewhere. In spite of this the patient lived and was neither blind nor crippled. In another case the only source of infection which could be determined was an abscess of the great toe.

Dr. Maire pointed out the value of the fixed condition of the eye in the making of the diagnosis of orbital cellulitis, as from a periostitis of the orbit. He reported a case of a lad working on a buzz-saw who was struck in the region of the ethmoid with a piece of wood. An orbital cellulitis followed the injury and affected both eyes. This subsided after a free incision, but left the patient with an external strabismus. Four years later the doctor found, on examination of the nose, a piece of pine $1\frac{1}{4} \times \frac{1}{2} \times \frac{1}{4}$ inches in size resting in the ethmoid region, and this was at once removed.

Dr. Frothingham reported a case of orbital cellulitis, apparently due to exposure to cold, where operation revealed a ruptured abscess of the frontal sinus. In another case the infection seemed to start in the lacrimal sac and then invaded the orbital tissues and frontal sinus.

Dr. R. Connor reported a case of a style lost in the lacrimal duct. The use of lacrimal styles is a very old method of treating lacrimal obstruction and has by no means been abandoned for other methods even to-day. The dangers of allowing a patient to drift out of sight wearing one of these tubes is well illustrated in this case. The patient, a girl of 11 years, was operated on in another city about a year ago for lacrimal obstruction and a silver drainage tube introduced after freely slitting the canaliculus. After a few months the patient removed to this city, with the tube, the mother says, still in place. A few weeks before presenting herself at my clinic at the Children's Free Hospital the mother noticed she could no longer see the end of the tube.

The patient was admitted and a careful search made under ether anesthesia for the missing tube. It could not be felt, either in the sac or in the duct. A metallic feeling was, however, noticed at the lower end of the duct, and it was observed that while a small probe could be passed to the floor of the nose the larger sizes of Theobald's set did not go completely into the nose.

An *x*-ray was then taken by Dr. Preston Hickey and revealed the tube broken at its bend, with the longer piece resting on the floor of the nose. Under cocain and adrenalin anesthesia the end of the larger piece could be both seen and felt under the tip of the inferior turbinate. With some difficulty this was loosened and pushed down the child's nose into the throat, from which it was promptly expelled by coughing.

Two more *x*-ray exposures were then made by Dr. Hickey, one with a No. 6 Williams probe in place and another with a No. 13 Theobald, which passed fairly easily, although the plate shows it barely touching the bit of tubing. The tube removed measured about 12 mm. long by 1½ mm. in diameter and was greatly eroded, especially at what was apparently the point of fracture.

By careful measurement of the probes introduced and the distance between the bit of tube and the floor of the nose on the one hand and the sac on the other, it appears that the remaining fragment is just about in the middle of the lacrimal duct and about half way between the nose and sac. It has so far resisted all efforts to dislodge it.

In spite of the large size of the duct, it is impossible to syringe through the sac and duct without first introducing the point of the syringe into the duct itself, showing some valve-like action at the opening of the sac into the duct. It would seem advisable rather than to undertake any destructive operation to leave the small bit of tube where it is and try to secure good drainage for the sac, which is badly infected.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of April 20, 1906.

Dr. E. W. Stevens, Denver, presiding.

ANNUAL MEETING—SECRETARY'S REPORT.

The present membership of the society is one honorary and twenty active members. Germany has the distinction of furnishing the only honorary member. Prof. J. Hirschberg. Of the active members, Leadville, Greeley, Boulder and Cheyenne are credited with one each, Colorado Springs with five and Denver with eleven members.

Seven stated meetings have been held, at which the attendance has been 88 out of a possible 125 (or 70 per cent.) and 12 visitors. Four members have made a record attendance of 100 per cent., including the founder of the society, Dr. Edward Jackson, who has never missed a meeting.

Three papers of scientific and practical interest have been read by members, forty cases exhibited, forty-five cases reported, and discussions of papers and cases have been general and too numerous to mention.

A resolution was passed condemning the division of fees for patients referred and the acceptance of commissions from opticians. The constitution was revised by a committee on codification.

In the seven years since March 17, 1899, three of the present members met to form an ophthalmologic society; this organization has grown sevenfold in numbers, and in greater proportion in help-fulness to its members and the added communities they serve, and has exerted an increasing influence on general ophthalmology.

ELECTION OF OFFICERS.

Drs. G. F. Libby and Melville Black were re-elected secretary and treasurer respectively, and Dr. Edward Jackson was elected chairman of the executive committee.

BLEPHAROPLASTY.

Dr. E. W. Stevens showed a patient upon whom he had operated six months before for entropion of the upper lids following trachoma. The entropion was of ten years' duration and the result of the operation was very satisfactory. The margins of the lids were split and a graft of mucous membrane taken from the lip was inserted. This operation has been practiced for many years at St. Mark's Hospital, Dublin, and has been described by J. B. Story and by A. H. Benson (*Brit. Med. Jour.*, Aug. 26, 1905).

ALBUMINURIC NEURORETINITIS.

Dr. G. F. Libby presented a woman, aged 28, who gave a history of scarlatina in 1898, nephritis being evidenced two years later by polyuria, albuminuria and edema of the legs. She was married in 1901 and then came to Colorado, where she has had remission of symptoms for two years. She had not become pregnant. In January, 1906, paralysis of the external recti and sphincter iridis occurred, but vision remained sufficiently good to write with the aid of strong prisms for four weeks, when the externi regained their power, although the mydriasis remained. For two weeks writing was possible, and the optician who referred the case declared there were then no fundus changes. Vision had been gradually reduced to fingers at one meter in each eye when first seen by Dr. Libby on March 26, after an illness of about a month, which the attendants thought would prove fatal. The typical facies of advanced nephritis was present, anemia being marked and the blood pressure 200 mm. Papillitis, numerous retinal hemorrhages and degenerative retinal changes were unusually pronounced. The patient complained most of severe general headaches, with nausea and vomiting. Her attending physician had promptly instituted appropriate constitutional treatment and was continuing the same. One month later, when shown to the society, the papillitis was diminished, the hemorrhages largely absorbed, but the whitish and grayish-white exudate in each retina was widespread and abundant. R. V. = 4/45. L. V. = no improvement. Headaches were less frequent and less severe and unaccompanied by gastric disturbances.

Discussion.—It was the general opinion that the patient had but a few months or less to live. Dr. Stevens spoke of a case with blood pressure of 300, in which general improvement and prolonged life had resulted from good care, ease of life and travel. Dr. Black thought the patient's only chance was to lower the blood pressure.

Dr. Jackson noted, two weeks later, that the slightly improved vision held, and there were no fresh hemorrhages, but the macular swelling was still quite striking; also that some of the finest vessels were seen with + 4. D., and yet + 1. D. added to her glasses made vision perceptibly worse. This he considered a very pretty demonstration that the swelling was in the retina and that the layer of rods and cones was not pushed forward.

HYALITIS.

Dr. Bane presented a man, 33 years of age, with hyalitis of the right eye. The patient had suffered the loss of the left eye thirteen years before from injury by a bit of steel. The steel had been carried in the eye for eight months without disturbance, when the vision rapidly failed. The steel was then removed by a magnet. Eight months later the eyeball became troublesome and the right eye showed some signs of sympathetic irritation. Upon the advice of his oculist, Dr. C. E. Walker, the eye was enucleated. For ten years the patient worked at bookkeeping without evidence of any defect in the right eye. Early in June, 1905, he first observed some floating opacities in the eye. Until two weeks ago the vision had been apparently good. At that time he was assorting onions which irritated the eye. A few days later he was again working over some onions, and to get relief from the irritation went out into the fresh air. Upon returning to the store he found the vision very much blurred and it has remained dim.

The patient was referred to Dr. Bane for consultation. He found the vision 6/9+, yet varied considerably. Tension was normal. Pupil 3 mm. in diameter, responsive to light and accommodation. Peripheral field normal. Examination of the eye revealed some fine dust-like opacities in the vitreous, also three flame-shaped clots and a membranous deposit 2x3 mm., all seen best with a + 7 D. A film of opacity existed about these deposits that prevented a clear direct view of the disc, but upon looking over the exudate the fundus was seen quite clearly.

(Dr. Bane had expected Dr. Walker present to report on the above case.)

Discussion.—Dr. Libby called attention to numerous small pinpoint blood deposits in the retina for a radius of two d. d. about the macula, and that the macular region had a peculiar whitish web- or lace-like appearance.

Dr. Black advised subconjunctival injections and use of the Rogers lamp.

Dr. Neeper suggested sweating by pilocarpin or hot baths.

Dr. Stevens indorsed these suggestions and advised mercury by inunction to the physiologic limit, saying that he had seen this strikingly successful when subconjunctival saline injections of 5 to 10 minims had failed.

Dr. Black concurred in the suggestion to give mercury, but advised injections of salicylate of mercury every ten days, which method he had found accurate and effective. He deplored sweating and would give tonics and increase nutrition.

TRAUMATIC OPTIC ATROPHY.

Dr. Melville Black showed a man, 43 years of age, a railroad engineer, who sustained an injury to his left malar bone on March 11, 1906, in a head-on collision. He discovered at once that the left eye was blind. His face was somewhat scalded and the skin cut over the malar bone. Several stitches were taken in this skin wound. Dr. Black saw him on March 13. He found no evidence of a direct ocular injury, except some subconjunctival ecchymosis. The eye was without perception of light. The left pupil reacted to light only with the right eye. If the right eye was covered the left pupil dilated at once and contracted again as soon as the right eye was uncovered. Ophthalmoscopically there was nothing abnormal observed. Three weeks after the injury the eye was in the same condition, except that the ecchymosis had cleared up. There was no evidence of nerve atrophy. When presented to the society, April 28, the nerve head was dead white and atrophy was fast taking place. No ocular muscles were paralyzed. The eye was somewhat enophthalmic. Dr. Black's diagnosis was atrophy following injury of the optic nerve at the apex of the orbit, most likely in the foramen, from fracture in this region, due to the blow on the malar bone.

Dr. Black reported that his case of monocular pigmented retinitis, shown at the last meeting, had improved as to night vision under further use of the high-frequency current, and spoke of a case of traumatic cataract, due to steel entering the eye thirty-four years ago.

Dr. Libby reported a relapse in his case of keratitis, reported two months ago. It was in the eye first affected and in clear cornea, and followed immediately an attack of influenza. The opacity was non-inflammatory. Dionin was dusted in twice a week. Specific treatment.

Dr. Bane reported a case of iritis of ten days' duration, with a superficial, vine-like ulcer over two-fifths of the cornea. There was pain at the inner canthus and in the nose, and posterior synechiæ. He attributed the attack to trophic disturbance of the fifth nerve.

Discussion.—Dr. Neeper advised 20 per cent. argyrol, which he has used in all ulcers, and iodoform.

Dr. Stevens thought it a Snoorin ulcer and likely to spread.

Dr. Black suggested trichloracetic acid, iodosyl and argyrol.

Dr. Ringle considered no local treatment of avail if there is no response after three or four applications, and would then look for a constitutional fault and seek to promote elimination. He would give calomel to the limit.

Adjourned until third Saturday in October.

George F. Libby, Secretary.

Notes and News.

MEETING OF AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

The Council of the American Academy of Ophthalmology and Otolaryngology wishes to announce that the coming meeting, Aug. 30, 31 and Sept. 1, 1906, will be held at the Hotel Oakland, situated fifty miles north of Detroit on the scenic banks of the St. Clair River. The Oakland may be reached from Detroit as follows: Via White Star Line steamers Tashmoo, City of Toledo and Owano, leaving foot of Griswold street at 8:30 a. m., 2:30 p. m., and 3:30 p. m., due to arrive at the Oakland's own dock at 12:57 p. m., 6:55 p. m., and 9 p. m. Ask for tickets for The Oakland. Return trip tickets from Detroit $1.00.

Via Detroit and Cleveland Navigation Co., steamers leaving foot of Wayne street at 5 o'clock p. m. Mondays and Saturdays and 9:30 a. m. Wednesdays and Fridays. Single fare 75c. No round trip tickets issued.

Via Rapid Railway leaving Inter-Urban Waiting Room, cor. Griswold and Larned Sts., every hour, beginning at 7 o'clock a. m., and at each even hour thereafter until 8 o'clock p. m. In addition there are three special fast time cars leaving at 7:45 a. m., 12:45 p. m., and 6:45 p. m., reaching The Oakland in two hours. Ask for tickets to St. Clair and request conductor to stop at The Oakland. Round trip ticket $1.30.

Via G. T. R. and M. C. Ry's, leaving Brush St. Depot at 8:25 a. m. and 4:20 p. m., making direct connection with the M. C. R. at Lenox for St Clair, arriving at 10:25 a. m. and 6:25 p. m. Round trip ticket $1.75.

The program this year is an exceptionally attractive one from every point of view. For further particulars concerning the meeting inquire of the Secretary, Dr. Geo. F. Suker, 103 State St., Chicago, Ill.

PROGRAM OF AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

OPENING OF SCIENTIFIC SESSIONS—10:30 A. M.

JOINT ADDRESS.—On Some Ocular Symptoms Common to or Produced by Affections of the Nose and Accessory Cavities by

Casey A. Wood. M.D., C.M., D.C.L., President of the American Academy of Ophthalmology and Otolaryngology, and Joseph A. Stucky, Vice-President and Chairman of the Section on Otolaryngology.

READING OF PAPERS.

1. The First American Ophthalmic Text-book, the Work of George Frick, of Baltimore. Dr. James Moores Ball, St. Louis, Mo.

2. Spontaneous Rupture of the Esophagus. Dr. J. O. McReynolds, Dallas, Texas. Discussion: Emil Mayer, New York, N. Y.

3. Report of a Case of Lingual Thyroids, with Specimen. Dr. Hal Foster, Kansas City, Mo. Discussion: Dr. John J. Kyle, Indianapolis, Ind.

THURSDAY, 2:00 P. M.—JOINT SESSION.

ORATION ON OPHTHALMOLOGY.—Optic Nerve Ailments. Mr. R. Marcus Gunn, London, Eng.

READING OF PAPERS—2:30 P. M.

4. The Safest Method of Using Paraffin. Dr. S. H. Large, Cleveland, Ohio. Discussion: Dr. Emil Mayer, New York City.

5. The Comparative Uselessness of the Spray and Electro-Cautery for the Rhinologist. Dr. Edward J. Bernstein, Kalamazoo, Mich.

6. Note on How to Obtain Reliable Replies by Letter from Patients. Dr. Lucien Howe, Buffalo, N. Y.

7. Treatment of Acute Dacryocystitis. Dr. Lee Masten Francis, Buffalo, N. Y.

FRIDAY, 9:00 A.M.—JOINT SESSION.

ORATION IN OTOLARYNGOLOGY.—Some Practical Problems in Otology and Rhinology. Dr. Dundas Grant, London, Eng.

OTOLARYNGOLOGIC SESSION—FRIDAY, 9:30 A. M.

8. Report of Two Cases of Radical Operation, Maxillary Sinus and Ethmoid. Dr. L. R. Culbertson, Zanesville, Ohio.

9. Cerebellar Abscess Following Acute Suppuration of Middle-Ear Operation. Death. Autopsy. Dr. Wm. D. Black, St. Louis, Mo.

10. Cerebral Complications of Suppuration in the Frontal Sinus, with Report of Case. Dr. Norval H. Pierce, Chicago, Ill.

11. Rapid Convalescence After Mastoid Operations. Dr. W. Sohier Bryant, New York City.

12. Is It Necessary to Open the Antrum in Every Case of Mastoid Operation? Dr. Geo. F. Cott, Buffalo, N. Y.

12. Evacuation of the Tympanic Cavity by Aspiration: an Aid to Drainage in Middle-Ear Suppuration. Dr. Percy Fridenberg. New York City.

Otolaryngologic Session—Friday, 2:00 P. M.

DEMONSTRATION OF CLINICAL CASES, SPECIMENS AND INSTRUMENTS.

14. Oral Tuberculosis. Dr. T. E. Carmody, Denver, Colo. Discussion: Dr. O. J. Stein, Chicago, Ill.

15. The Importance of an Early Diagnosis of Malignancy of the Larynx. Dr. O. J. Stein, Chicago, Ill.

16. Does Laryngeal Tuberculosis Occur as a Primary Infection? Dr. Lorenzo B. Lockhard, Denver, Colo. Discussion: Dr. Wm. L. Ballenger, Chicago, Ill.

17. Cleft Palate and Hare-Lip. Dr. Kate Wylie Baldwin, Philadelphia, Pa. Discussion: Dr. J. C. Beck, Chicago, Ill.

18. Sarcoma of the Nose, with a Consideration of the Spontaneous Disappearance of Malignant Growths. Dr. Robert Levy, Denver, Colo.

19. Complete Removal of Faucial Tonsils. Dr. O. A. Griffin, Ann Arbor, Mich. Discussion: Dr. Don M. Campbell, Detroit, Mich.

Ophthalmic Session—Friday, 9:30 A. M.

20. Changes in Curvature of Cornea Produced by Chalazions. Dr. T. W. Moore, Huntington, W. Va. Discussion: Dr. D. T. Vail, Cincinnati, Ohio.

21. Primary Tubercle of Cornea—Report of Microscopic Examination. Dr. Eugene Smith, Detroit, Mich. Discussion: Dr. Heneage Gibbs, Detroit, Mich.

22. Obstructive Disease of the Retinal Vessels. Dr. Wendell Reber, Philadelphia, Pa. Discussion: Dr. L. A. W. Alleman, Brooklyn, N. Y.

23. Report of Case. Embolism of the Central Artery of the Retina. Dr. D. Emmett Welsh. Grand Rapids, Mich. Discussion: Dr. Wm. Gamble, Chicago, Ill.

24. Occlusion of Branch of Central Artery of Retina. Dr. George F. Keiper, Lafayette, Ind. Discussion: Dr. H. V. Würdemann, Milwaukee, Wis.

25. Massage and Electricity in Treatment of Atrophy of the Optic Nerve and Retina. Dr. H. V. Würdemann, Milwaukee, Wis.

Ophthalmic Session—Friday, 2:00 P. M.

DEMONSTRATION OF CLINICAL CASES, SPECIMENS AND INSTRUMENTS.

26. Eyestrain and Crime. Dr. Geo. M. Case, Elmira, N. Y. Discussion: Dr. Geo. M. Gould, Philadelphia, Pa.

27. A Statistical Inquiry as to the Relief and Cure of Migraine by the Correction of Errors of Refraction. Dr. A. R. Baker, Cleveland, Ohio.

28. Spontaneous Dislocation of Both Crystalline Lenses in Two Members of the Same Family. Dr. Alvin A. Hubbell, Buffalo, N. Y.

29. Punctate Opacities of the Posterior Lens Capsule. Dr. Wm. F. Mittendorf, New York, N. Y.

30. Cataract Extraction Within the Capsule by External Manipulation, the So-called Indiana Method—Report of Cases. Dr. D. W. Greene, Dayton, Ohio. Discussion: Dr. A. A. Hubbell, Buffalo, N. Y.

31. Cataract Extraction, with Preliminary Capsulotomy. Dr. Homer E. Smith, Norwich, N. Y. Discussion: Dr. Ed Jackson, Denver, Colo.

Saturday, 9:00 A.M.—Joint Session.

32. Note on the So-called Colloid Bodies of the Choroid and Their Connection with Ossification. Dr. Adolf Alt, St. Louis, Mo.

33. Some Considerations Relative to Nasal Obstruction. Dr. A. E. Prince, Springfield, Ill.

34. Pathologic Conditions of the Adult Nasopharynx. Dr. Edwin Pynchon, Chicago, Ill. Discussion: Dr. Buckwalter, Birmingham, Ala.

35. Exclusion of Hypermetropes from Railroad Service. Dr. W. R. Parker, Detroit, Mich.

36. High Hypermetropia. Dr. T. B. Schneideman, Philadelphia, Pa. Discussion: Dr. Edward Jackson, Denver, Colo.

37. The Value of High Frequency Current in Ophthalmic Practice. Dr. L. W. Fox, Philadelphia, Pa.

38. Suggestions for Americans Contemplating Postgraduate Ophthalmologic Study in Europe. Dr. Eugene Richards Lewis, Dubuque, Iowa. Discussion: Dr. Casey A. Wood, Chicago, Ill.

39. Melano Sarcoma of the Choroid, with Report of Case Operated On Before the Glaucomatous Stage. Dr. John F. Byington, Battle Creek, Mich. Discussion: Dr. Geo. Knapp, Vincennes, Ohio.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, AUGUST, 1906. VOL. XV. No. 8, NEW SERIES.

Original Articles.

OBSERVATIONS ON METHODS OF ADVANCEMENT.*

J. E. COGAN, M.D.
CLEVELAND, OHIO.

(Illustrated.)

In advocating a new operative procedure, it is necessary to consider the unsatisfactory points of some of the well-known methods to justify this communication with suggestions of improvements.

WORTH'S OPERATION.

The upper and lower quarters of the muscle are compressed and strangulated.

This is of mechanical and surgical importance when we consider our object is to strengthen the weaker muscle.

A constriction of one-half of its total must more or less impair its muscular strength and vitality.

The posterior stitch acts as a single stitch and must slip up to cross suture before it is firmly held. When does it pull up? While being tied or more likely gradually gives way, producing a loosening of the suture.

Scleral suture pulls straight back, having an apex for support. They are tied separately by lateral pull on the muscle at different times, giving rise to the danger of an uneven or folded condition of the tendon on sclera. The field of operation can not be inspected while muscle is being advanced.

The method described in the recent edition of de Schweinitz's *Ophthalmology* has some of the faults of the previous method described, with some additional ones. First, each half of the tendon is encircled by a knot so that one has two round cords to unite to sclera.

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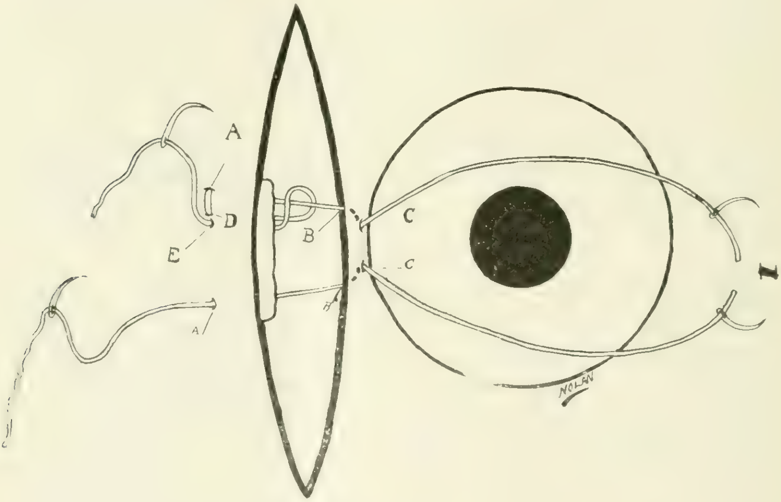
* Read at the meeting of the Ohio State Medical Society, Canton, Ohio, May 10, 1906.

The point of traction on muscle is at the cut end of the tendon, certainly increasing the liability of slipping. The scleral fixation is to each lateral side of the cornea; it is self-evident that this lateral traction causes greater expenditure of force than if the pull were straight ahead.

Danger in a wide deviation is that the tendon stump might reach the cornea before sufficient effect is produced.

Stevenson's Operation.—The muscular suture has the posterior stitch of Worth's, but does not meet the firm constriction of the latter. Therefore, traction acts with considerable roll and the pull is almost entirely on the last stitch. The two muscular sutures pull from under surface of the muscle and must tend to evert the anterior end, which should be in close apposition to the sclera.



The principle of Stevenson's scleral sutures is, I think, mechanically the best described.

A moment's work with needle and thread will show how much firmer a suture is which has a half circle for its support than one which pulls straight back.

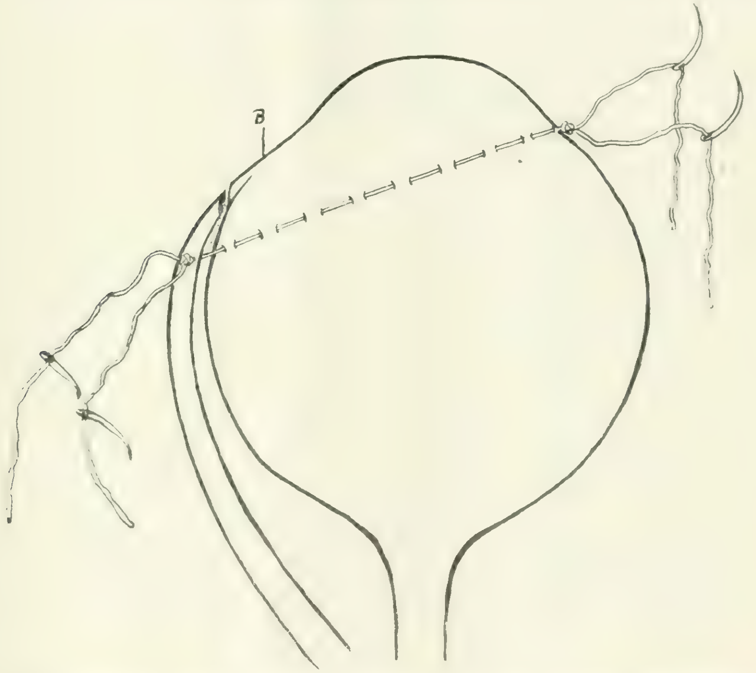
The method by which most of the above faults can be eliminated is as follows:

Two prepared sutures of No. 3 black silk, each eight inches long, well oiled, armed with No. 2 curved patent eye needles at each end.

A vertical incision is made about 7 mm. from the cornea over the site of the tendon, through conjunctiva and the capsule, the muscles exposed and elevated with strabismus hook.

The advancement forceps is inserted, with lower blade resting on under surface of the muscle, with the upper blade on the conjunctiva. The tendon is then cut close to the sclera and the hook removed.

One end of the double-armed suture is inserted at A, Figure 1, through the conjunctiva capsule and muscle; carried forward to B, where the scleral insertion is made, coming out at C; the other end of the same suture is entered at D; through the conjunctiva capsule and muscle, carried *out under* and *back over* the other suture and re-entered through muscle, capsule and conjunctiva, coming out at E, all ends left long. This suture forms an adjustable loop on the under surface of the muscle, Figure 3.



The same procedure is carried out on the lower third of the muscle. The muscular sutures are then drawn up and tied tightly by surgeon's knot. The muscle is then advanced by surgeon's knot at C and any redundant tissue excised. Finally, the two long ends of the muscular sutures are tied with the two long ends of the scleral sutures acting as a bandage on the back of the muscle, keeping it in close apposition to the sclera.

The advantages of this operation are:

No unnecesary constriction or strangulation of the muscle.

No posterior stitch to pull forward.

The muscle hold is adjustable, pulls at cross axis of muscular fiber and constringes only the amount required. The field of operation is exposed while muscle is being advanced, and it is all advanced by the one knot. The final knot acting as additional security, the suture can be easily removed.

The weak point in the above operation is the suturing of the sclera, the difficulty of getting just enough sclera to hold, confronted by the danger of going through if too deep and the danger of pulling out if not deep enough.

According to Norris and Oliver, if you enter three or four mm. back of the edge of the cornea you will be anterior to ciliary body and in posterior chamber. The ciliary region occupying three or four mm. back of that, so that penetration of vitreous occurring any place within 8 mm. of the cornea one is in great danger of wounding the ciliary region.

My peace of mind is not increased by opening several pigs' eyes on which I have previously done some deep scleral suturing to find half of them had penetrated the vitreous at one point or another during their course.

We are partly consoled by good ophthalmologists, of far more experience in scleral suturing than the writer, who positively state that they do go through, but that it is absolutely safe in their experience, regardless of the fact that all ophthalmologic authority is unanimous in declaring that injury to the ciliary region is likely to be followed by loss of one or both eyes and that such a procedure is hazardous in the extreme, if not absolutely unjustifiable. Certainly no ophthalmologist would consider it good for the eye. The difficulty of attaching a suture to a membrane half a mm. thick without penetration is apparent.

I wish to suggest a method which I have used but once with an excellent result.

It may not be applicable to all cases; time and further experience may demonstrate unthought-of faults.

It has the advantage of eliminating the danger of perforation and its possible consequences, ease of execution, being tied around the eye itself. The muscular sutures are the same as the above described.

Instead of scleral sutures each one is passed around the cornea in purse-string fashion in and out of the conjunctiva and tied at the opposite side of the eye; the last two stitches going through the superficial sclera and tied with the surgeon's knot. The operation is then completed by bringing one of the armed muscular sutures forward to B, Figure 2, when it is inserted through episcleral tissue out through conjunctiva and tied with other muscular sutures closing the wound.

The method has no scleral stitches to pull out and its support is the eyeball itself.

The muscular suture is very easily removed; cut each suture between A and D, Figure 1, and pull.

707 Rose Building.

A CRITICAL REVIEW OF THE AMERICAN RAILWAY ASSOCIATION'S RULES GOVERNING THE VISUAL QUALIFICATIONS OF EMPLOYEES.

NELSON MILES BLACK, M.D.
MILWAUKEE WIS.

(Illustrated.)

The United States has far outstripped any other country in railroad building. "We had, for example, in 1904, as shown by a recent compilation made by the Department of Commerce, 40 per cent. of the railroad mileage of the whole world and more than twice as much as all the other Anglo-Saxon countries put together—the United Kingdom and all its colonies, counting India." There have been more than 6,000 miles of railroad built in the last six months, and indications point to an increasing rather than a diminishing rate for several years to come.

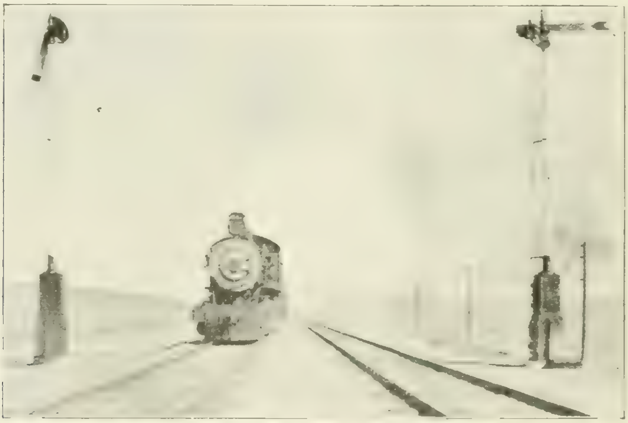


Fig. 1.—Home and distant signals, home signal clear, distant stop.

The growth in passenger and freight traffic has been even more remarkable than the extension of the roads. "The number of passengers has been more than doubled within twenty years, and the tons of freight have been multiplied by three."

The accommodation of this immense increase in traffic has been brought about by several means: (1) By increase in the number, size and carrying capacity of the rolling stock. (2) By increasing the parallel trackage. (3) By increasing the number of trains on the same trackage. (4) by decreasing the running time of trains.

The president of the Railway Signal Association said in his annual address last year:* "The question of getting the most out of a unit of track and a unit of motive power is one that is requiring the careful consideration of every general manager, and I know of no better representative on his staff than the signal engineer's assistance toward the accomplishment of that purpose." Certainly the establishment of the block signal system has not only been an absolute necessity in this immense increase in traffic, but a great factor in the prevention of accidents. It has enabled railroads to accomplish the feat of rushing trains across the continent in five days; and in starting trains from various terminals under full headway, at thirty seconds intervals; this with 100 per cent. added to the normal danger limit, for additional safety.

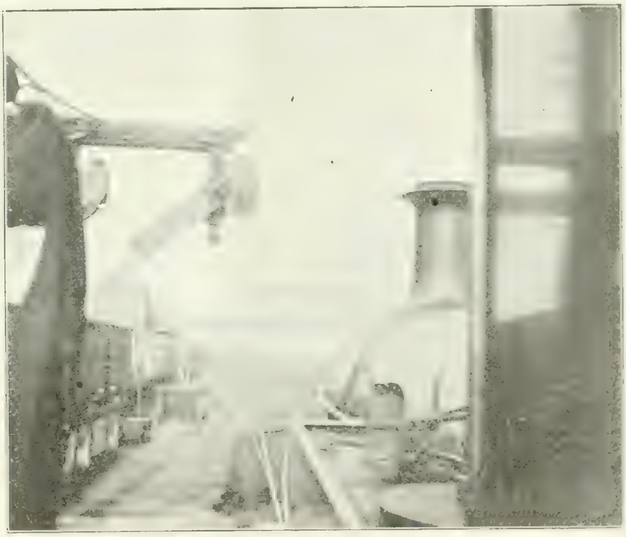


Fig. 2. English type of semaphore.

To say good vision and perfect color perception are very important factors in present-day railroading is certainly not an exaggerated statement. The signals, which are as a rule position signals (semaphores) by day (the color signal by day is being largely replaced by the semaphore) and color indications by night, must be recognized at a distance of about one-half mile (2,640 feet), in order to stop a six-car train running 70 miles an hour within that distance.

BLOCK SIGNALS.[1]

The semaphores are the best type of a position block signal and consist of a tall pole with a blade at or near the top, arranged so that it can be placed at various angles to the perpendicular. The blade in this country averages 4½ feet in length by 6 inches in width, and is made of wood or metal. In England, on the majority of the roads, the blade is 5½ feet long and 1 foot wide, and made of metal. In Germany the blade is about the same length and width as in England, but ends with a circle somewhat larger in diameter than the width of the blade; it is also fenestrated. The blade in use in the United States, when seen at one-half mile, practically equals the top stroke of a letter T, that would subtend an angle of five minutes at one-half mile distance, each stroke of the letter subtending a one-minute angle. Thus anyone with average normal vision should have no trouble in recognizing the position of a semaphore at one-half mile, in good weather conditions. In fact, with good backgrounds they are easily distinguished at 2 to 3 miles.

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* Annual Address of President of Railway Signal Association. Proceedings, 1905.

[1] **Black: Nelson M.: "The Environments and Visual Requirements of Railway** Enginemen and Firemen." Transactions Ophthalmic Section A. M. A., 1904.

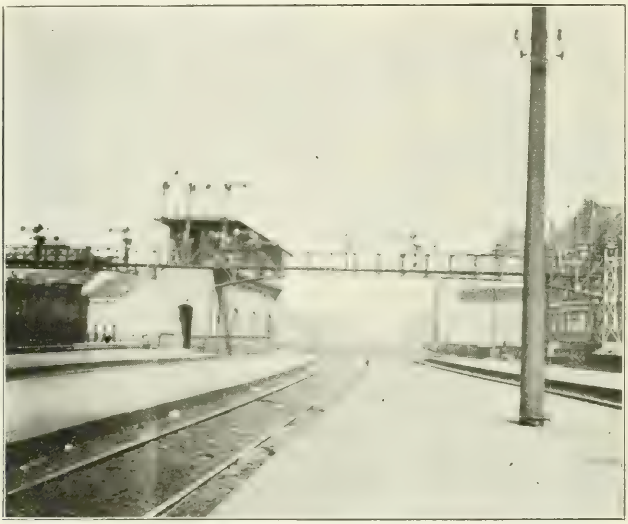

Fig. 3.—German type of semaphore.

The blade in the horizontal position on a "home" signal *always* indicates "stop." When the blade is dropped from the horizontal toward the perpendicular the indication is "proceed." A "distance" signal indicates the condition of the "home" signal, or is a caution signal. Different roads at present use different angles from the horizontal to the perpendicular 45°, 60° and 90°; the Railway Signal Association, at its last meeting, I believe, adopted a standard of 60° below the horizontal. In Germany the "proceed" position is 45° above the horizontal or "stop" position. The question of adopting a position above the horizontal for a "proceed" indication is being advocated by the Railway Signal Association.

The color of the "home" and "advance" blades is usually red with a broad white stripe near the outer end, distant signals are as a rule painted green with a similar white stripe; some roads use yellow for the distant signal with a black band near the outer end. The color of the semaphore is not made use of to determine an indication, it being a position signal. Another method of distinguishing between a "home" and distant signal is the shape of the end of the blade; the home signal is always square, the distant signal fish-tail.

The disc signal is the type in which color is used to give the indication by day. It consists of a white or transparent background, before which a disc of red or green cloth, 17 inches in diameter, is dropped.

The night signals consist of the rays of a kerosene light collected by a lens. The indications are varied by transmission through colored glass.

The lenses of the lamps are almost universally of the corrugated type and have the power of collecting the divergent rays into an almost parallel beam. Those in use in the block systems are usually 5⅜ inches in diameter, and have a 3½-inch focus. The "roundel" or colored glass used is 6½ inches in diameter and is placed in the spectacle frame of the semaphore so that when the blade changes position the glass before the lamps give the same indication at night as the semaphore blade by day.

EXAMINATIONS.

Practically all the railroads of the United States have adopted a very thorough system of examination of candidates for employment and re-examination of old employés. There has, however, been no uniformity in the requirements, each road selecting or having selected for it by some recognized authority certain requirements of vision and color perception regarded as safe. The methods of examination and test objects used differ but little, the lack of uniformity being in what different roads construe as a sufficiently safe standard. Through the efforts of such men as Dr. B. Joy Jeffries, Dr. William Thomson, Dr. Frank Allport, Dr. Charles H. Williams, Dr. Charles A. Oliver and others, the standards of not only visual requirements but physical and educational requirements have been raised.

The Committee on Safety Appliances of the American Railway

Association about one year ago reported unanimously on "Rules Governing the Determination of Physical and Educational Qualifications of Employés." These were adopted by the Association April 5, 1905. They are copied in full.

RULES.

1. The qualifications essential in certain positions[2] must be determined by the examinations prescribed by these rules.[3]

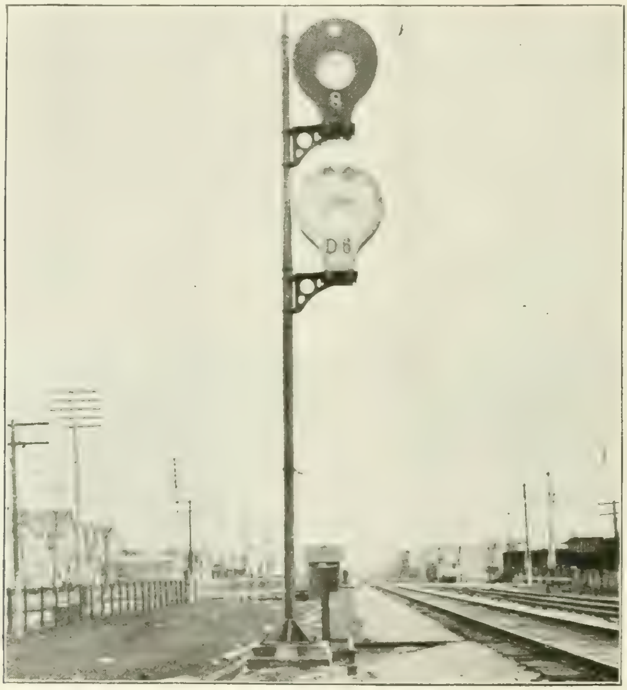

Fig. 4. —Disc block signal.

2. Application blank, Form ——,[4] must be used by candidates for employment and by those selected for promotion.

3. Candidates for employment or selected for promotion must pass the prescribed examinations and tests before being permitted to enter, except temporarily, upon the duties of the position sought.

4. The general mental characteristics and the bearing of the candidate must be noted on the application blank by the examiner.[5]

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[2] These positions are to be determined by each road in accordance with its organization.

[3] Examinations should not be made when the candidate has just come in from a run or been subject to unusual fatigue.

[4] Form (A) which can be used either by candidates for employment or for promotion is recommended.

[5] Such as confident, diffident, bright, dull, quick, slow, etc.

5. Re-examinations may be ordered at any time by proper authority.

6. Applications will be approved or rejected by proper authority.

PHYSICAL EXAMINATIONS.—VISUAL QUALIFICATIONS.

7. Examinations must develop: (a) Sufficient acuteness of vision to clearly see the prescribed visible signals. (b) Ability to clearly distinguish the colors of the prescribed visible signals.

7A. ACUTENESS OF VISION.—REQUISITES.

Class A.—Enginemen, Firemen, Conductors, Train Baggagemen, Brakemen and Flagmen in Road and Yard Service.

Entrance to Service.	Promotion.	Re-examination of those in the Service.
20/20 in one eye and not less than 20/30 in the other; tested without glasses.	20/20 in one eye and not less than 20/30 in the other; tested without glasses.	—* in one eye and not less than —† in the other; tested without glasses.

Class B.—Signalmen, Signal Repairmen and Telegraphers.

Entrance to Service.	Promotion.	Re-examination of those in the Service.
20/20 in one eye and not less than 20/40 in the other; tested without glasses.	Not less than 20/30 in one eye and not less than 20/40 in the other; tested without glasses.	—* in one eye and not less than —* in the other; tested without glasses.

Class C.—Other Employés in the Engine, Train or Yard Service, Car and Engine Inspectors, and Bridge and Track Foremen.

Entrance to Service.	Promotion.	Re-examination of those in the Service.
Not less than 20/30 in one eye and not less than 20/40 in the other; tested without glasses.	Not less than 20/30 in one eye and not less than 20/40 in the other; tested without glasses.	—‡ in one eye and not less than —‡ in the other; tested without glasses.

Class D.—Crossing Watchmen.

Entrance to Service.	Promotion.	Re-examination of those in the Service.
20/40 with both eyes open, without glasses.		—‡ with both eyes open, without glasses.

In case of failure of a candidate for re-examination under Class A, or for entrance to service, promotion or re-examination under Classes B, C and D, to pass the tests when examined without glasses and further expert examination shows that with glasses the tests can be met satisfactorily, the acceptance of the candidate is optional.

EQUIPMENT.

1. A set of at least two standard cards of Snellen's test letters showing letters of various sizes, from 20 to 70, inclusive. The letters to be arranged in different order in the corresponding lines of each card.

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* It is recommended that each road fill the blank with the figures which best suit its conditions and the requirements of its medical examiner.

† Class B should include station agents when they are required to perform the duties of signalmen.

‡ It is recommended that each road fill the blank with the figures which best suit its conditions and the requirements of its medical examiner.

2. A standard reading test card with matter printed in various type.

3. A test spectacle frame with opaque disc.

Adjunct.—The following may be used if desired: A set of test cards showing semaphores in various positions.

METHOD OF TESTING.

Letter Card Test.—Place the candidate to be examined so that he will not face a strong light; cover one of his eyes with opaque disc in test frame; place one of the cards, at a distance of 20 feet from him, in a clear light, but not in direct sunlight, and direct him to read the letters on certain lines as selected by the examiner, including the line marked 20. A portion of the test card may be covered and the candidate required to read the intervening letters. If he can read the letters on the line marked 20 correctly, substitute another card with a different arrangement of letters and test in a

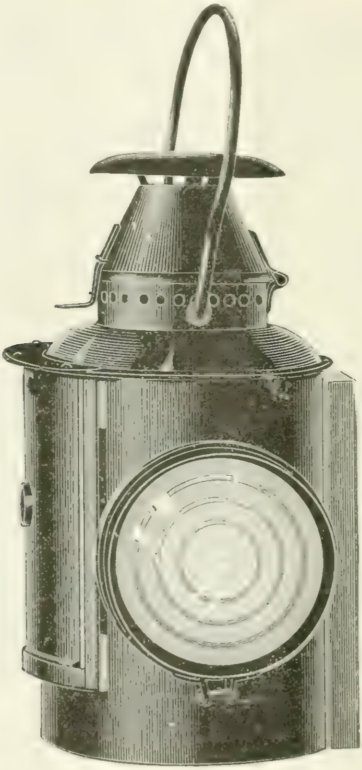

Fig. 5.—Adams Westlake & Co.'s non-sweating ventilation semaphore lamp, with corrugated lens.

similar manner. If he reads the letters on the line marked 20 on both cards correctly, it indicates normal vision. If he can not read the letters on the line marked 20 direct him to read the lines above 20 successively until a line is found which he can read.

Record in fractions the acuteness of vision as determined, the numerator being 20 (distance at which the card is placed) and the denominator the number on the card showing the smallest sized letters that he has read correctly.*

Repeat this test with the other eye and record the results.

Mistakes of not more than three letters on the 20 line; two letters on the 30 line, and one letter on the 40 line will be considered as a satisfactory reading. Other lines must be read without error.

If the results of the tests are not conclusive to the examiner he will refer the case to the ——† for decision.

Reading Card Test.—Direct the candidate to read certain letters or sentences from the standard reading test card and record the smallest size of print read correctly at the ordinary distance of from 14 to 18 inches. A portion of the test card may be covered and the candidate required to read the remainder of the paragraph. The candidate should be able to read the print in paragraph No. 2 of the Standard Card to pass the test satisfactorily. This test should be made without glasses except at the age or under other conditions where the use of glasses is permitted.

If the results of the tests are not conclusive to the examiner, he will refer the case to ——† for decision.

7B. COLOR PERCEPTION.—EQUIPMENT.

One set of Holmgren's colored worsteds, as simplified by Dr. William Thomson, tagged for reference by lettering A, B and C and numbering 1 to 40.

Group A, containing the light green skein A, the similar shades numbered 1, 3, 5, 7, 9, 11, 13, 15, 17 and 19, and the confusion shades numbered 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20.

Group B, containing the rose skein B, the similar shades numbered 21, 23, 25, 27, 29, and the confusion shades numbered 22, 24, 26, 28 and 30.

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* If the letters on the line marked 20 can be read with each eye separately the record should show 20/20. If the letters on the line marked 20 can not be read, and the letters on the line marked 30 can be read, the record should show 20/30. If the letters on the line marked 30 can not be read, but those on the line marked 40 can be read, the record should show 20/40. If the letters on the line marked 40 can not be read, but those on the line marked 50 can be read, the record should show 20/50. If the letters on the line marked 50 can not be read but those on the line marked 70 can be read, the record should show 20/70.

† To be filled in by each road in accordance with its organization.

Group C, containing the red skein C, the similar shades numbered 31, 33, 35, 37, 39, and the confusion shades numbered 32, 34, 36, 38 and 40.

Adjunct.—The following may be used if desired: A lantern showing a number of colored lights which can be varied in size and intensity.

METHOD OF TESTING.

Holmgren Test.—Place the whole number of colored worsteds on a table in good, clear daylight. Put the test skein A at a distance of about 2 feet from the other colors and ask the candidate being examined to select from the heap of colors all that look to him like the test skein and place them beside it. Have him understand that he is not expected to find an exact match for the test skein, but that he is to choose all the colors that appear to him of the same general color as the test skein, both those that are lighter and those that are darker in shade. If he does not easily understand what is wanted, let the examiner himself select the colors; then, having returned them to the general heap and mixed them thoroughly with the rest of the colors, let him call on the candidate being examined to repeat the selection. This demonstration will not enable a candidate who is defective in his color perception to select the colors correctly, and he may pick out as looking to him like the test skein A some greens and also some of the gray or brown confusion colors, which will appear to him of the same general color as the test skein, only varying from it in shade. Record on the form the numbers on the tags of the colors incorrectly selected as being similar to the test skein A, and also note whether the selection is prompt or hesitating, by writing the letter "P" or "H" on the line opposite each of the names of the colors as printed. Return all the colors to the heap and mix them together, then place the test skeins B and C successively apart from the rest and have the candidate being examined select, as before, all the colors that look to him like each skein, and record the results as for skein A.

No names should be mentioned in connection with any color in the above worsted tests, which should be based only on a comparison of colors.

If the candidate being examined selects as looking like the green test skein A any of the reds, or as looking like the rose test skein B any of the greens, the candidate shall be rejected.

If the candidate for employment selects some of the grays or browns as looking like the green test skein A, or some of the grays, blues or violets as looking like the rose test skein B, the candidate shall be rejected. If a candidate for promotion or re-examination makes such a selection, full report should be made and referred to the ——† for decision.

The selection by the candidate of one of the "colors of confusion" (even numbers 2 to 30) as matching test skein A, indicates color blindness. The failure to do this, but a manifest disposition to do so, indicates feeble color perception; making correct selection to match test skein B, having failed to match test skein A, incomplete color blindness is indicated. But should he in this test select the purple, the green and gray shades also, or one of them, complete green blindness is indicated. The test with skein C (which is applied only to those who are color blind as to green or red) should be continued until the candidate under examination has selected the specimens of or a greater part of the skeins belonging to this color, or else one of several "colors of confusion" (even skeins 32 to 40). In this test red blindness is proven by the selection, besides the red shades, of olive green and dark brown shades of a darker quality than the red test skein. Green blindness is proven by the selection of similar confusion colors, but of a quality lighter than the red test skein.

8. Re-examinations for acuteness of vision, color perception and hearing shall be made at periods of not less than ——† years.

9. If upon re-examination for acuteness of vision, color perception or hearing, an employé who has been at least ——† two years in the service, shall fail to pass the prescribed tests, if he so desires, he may be accorded a field test under service conditions. If he is able to pass the field test successfully, and upon the approval, after examination, by the company's oculist, he may be retained in the service.

There is considerabl leeway allowed in these rules. This undoubtedly is for the purpose of giving the various roads time to swing into line, as too decided changes could not be expected to be adopted at once, this being the first step of the American Railway Association in this direction.

There are a few points for criticism; whether they are just, time and practical working of the rules alone will tell.

EXAMINERS.

First, the rules do not designate who shall conduct the examinations. Those for vision and color perception *should be made by a person scientifically trained for such work, an ophthalmologist.* With a large proportion of the roads the examinations are made by instructed, but non-professional persons, usually otherwise employed by the company. The main reason for this is the expense that would be incurred by having an ophthalmologist do this work. Regarding this phase of the subject, Mr. George F. West, assistant superintendent of line of the London and South Western Railway, England, stated in reference to the additional expense, the results obtained during the past fourteen years, during which time the examinations on this road have been made by an ophthalmologist (Mr. F. Hayden) compared with results on roads which the examinations were made by a non-professional man, show conclusively the economy. The reasons why these examinations should be made by a man scientically trained have been most thoroughly discussed time and again.

PERFECT VISION FOR ENTRANCE.

For entrance into service "20/20 vision in one eye and not less than 20/30 in the other; tested without glasses" is required.

The visual requirements for entrance into service should be 20/20 (6/6) or what is always referred to as "normal vision" *in each eye tested separately without glasses.* Dr. Frank Allport[6] very forcibly remarks: "It would seem as if there could scarcely be a doubt as to the advisability of rigid requirements for those hoping to become employés, yet some ultra practical railroad men and general surgeons believe that perfect eyes and ears are unnecessary requirements for such applicants. The world is full of healthy men possessing perfect eyes and ears; therefore, while a railroad is under no possible obligations to primarily employ a man, why should they not secure men of this standard and at least start right? This is not only an act of justice to the road, which certainly possesses the right to demand the highest physical concessions later on, but is also an act of justice to the man, who enters railroad service with hopes of advancement in mind, but whose ambitions may be harshly dissipated later in life, when eyes and ears, barely sufficient to admit him to service under an inferior standard, diminish in power until, at a crucial period in the man's life, when about to realize his hopes, these organs prove incapable of standing the required test. While, therefore, I am heartily in favor of making all possible concessions to old employés at all compatible with safety, believing that age, experience, familiarity with routes, judgment, etc., compensate to a degree for somewhat defective eyes and ears, I am positive that the standard should be perfection for those applicants hoping to enter the service of a railroading corporation for the first time."

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[6] Allport, Frank: "What Amount of Visual Defect Should Disqualify in Railroad Service?" Journal of the American Medical Association, Oct. 13, 1900.

PROMOTION.

The requisites for promotion for enginemen, firemen, conductors, train baggagemen, brakemen and flagmen in road and yard service is "20/20 in one eye and not less than 20/30 in the other; tested without glasses," or the same as for entrance into service. While I believe in maintaining a high standard, it seems rather of an injustice to require the same standard of employés for promotion as for those about to enter service. These men have been in the employ of the company for a number of years and by reason of good service rendered are to be promoted. Their occupation is a more or less trying one on the eyes, especially that of a fireman. The standard of 20/20 in one eye and 20/30 is not too severe if the standard for *entrance* is made 20/20 in each eye tested separately; *except in those cases of men after 35 to 40 years of age who come up for promotion.* These men should be placed in a class by themselves. A class in which if the vision fall below the standard required and can be brought to such standard by aid of glasses, they be promoted, but required to wear glasses while on duty.

LATENT REFRACTIVE ERRORS AND GLASSES.

This will allow for latent refractive errors made manifest by physiologic loss of accommodation power due to advancing years, and leads to the question of allowing old employés to wear glasses in service. It is a well-known fact that a young man at the age of from 18 to 25 may possess several diopters of latent hypermetropia (far-sightedness), considerable astigmatism or a combination of these, and have no difficulty in passing the entrance examination. Upon attaining the age of 35 to 40 his vision will be greatly diminished from the natural loss of accommodation with increasing age, his eyes being perfectly healthy. This apparent loss of vision is easily, but only remedied by use of glasses, and while I am perfectly satisfied from quite an extended experience of riding upon engines that an engineman or fireman is as safe an employé wearing glasses, if not safer, from the protection they afford, than one without them, there is a strong but rapidly dying sentiment against their use in service. A circular letter sent to ophthalmologists throughout the United States, asking for an opinion as to the safeness of an engineman or fireman wearing glasses while on duty, for protection, or to bring diminished vision up to the required standard, there being no ocular disease and color vision being perfect, resuted in 485 replies, of which 463 were in the affirmative and 22 negative.[7]

PROMOTION OF FIREMAN TO ENGINEMAN REQUIRING GLASSES.

The usual length of time a man fires before he is scheduled for promotion is so short it is not deemed wise to promote him to an engineman if he requires glasses, unless his loss of vision has occurred in line of duty. Dr. A. I. Bouffleur,[5] Chief Surgeon, C., M. & St. Paul R. R., says: "Most firemen come up for promotion on the Milwaukee Road in 4 to 8 years; they are, as a rule, young men from 18 to 25 years of age. I hold that if in these young men sufficient change in the sight has occurred in the first few years of their employment so that it is necessary to utilize glasses to bring their vision above 20/20 and 20/30 the prospects of their becoming incapacitated at a comparatively early time in life as an engineer is such that they should not be promoted, unless this defect has been brought about by their work. If a man is promoted at 30, which is late, with a defective sight, what will that man be at 50 or 55? This point is of particular value when the question of pension comes into consideration, but my opinion is formulated wholly upon the proposition as to the safety of the employé. In other words, if a man's eyesight is normal at 20 and deteriorates 50 per cent. in 6 to 8 years, except as the result of trauma, he would naturally become totally incapacitated before he reaches the age of 60. As an engineer has already passed through the experimental stage and is older both as an employé and in years, the rapidity of change must necessarily have been much slower and, therefore, the greater likelihood of his filling a full expectancy as an employé."

Dr. John E. Owens, Chief Surgeon[5] C. & N. W. R. R., says: "Firemen and brakemen are not eligible for promotion when glasses are required to reach the standard normal vision, and under such circumstances they are not retained in service; they are given a certain specified time in order to get other employment."

It is true there is some temporary diminution of vision produced by the heat and glare from the firebox especially in the left eye, but this is not permanent.[2] Many authors have reported cases of cataract and disease of the fundus resulting from such exposure in glass blowers and puddlers. The exposure of the fireman's eyes, however, is intermittent, the intensity of the heat and glare is less and there is always a current of air produced by the rapidly moving engine which can not be obtained in the above-named occupations.

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[7] Black, Nelson M.: "Advantages and Disadvantages of Glasses in Railway Service." American Journal of Ophthalmology, February and March, 1906.

Firemen should not attempt an examination for promotion without a complete rest of the eyes for a few days.

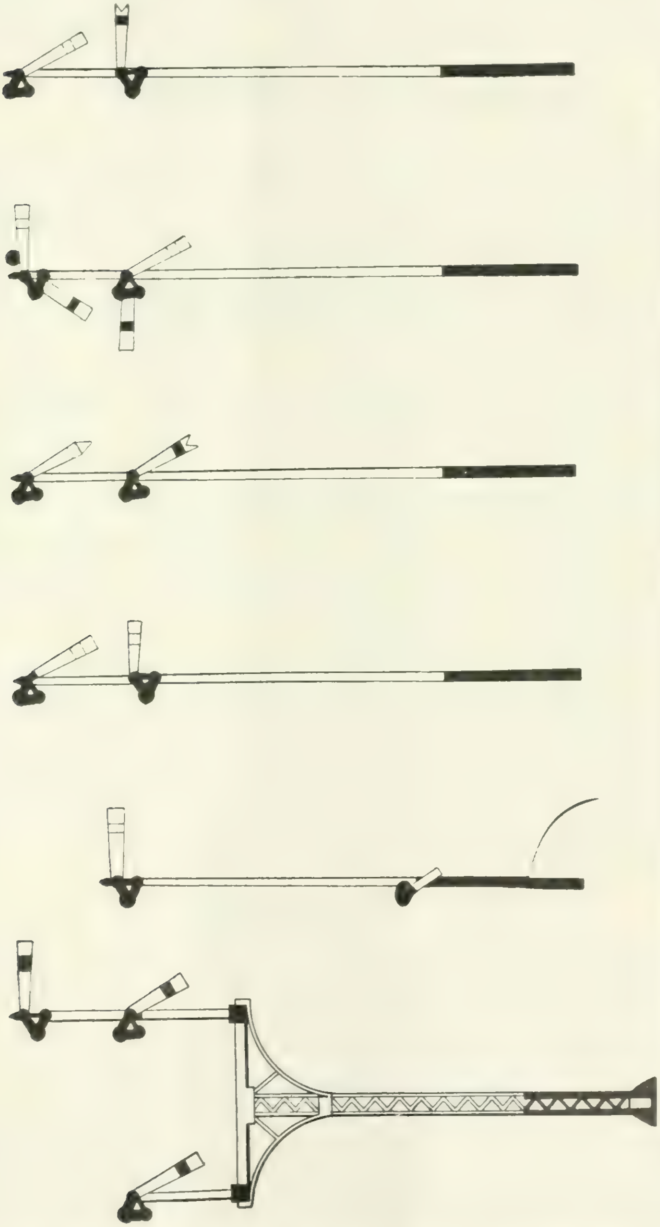

Fig. 6.—The author's new semaphore charts for testing vision of railroad employes. Made by F. A. Hardy & Co.

Within the last two years I have found many firemen using automobile goggles for protection while on duty.

The question of glasses for distance, in the future railway service, can largely be avoided by not accepting those applying for situations having one or more diopters of latent refractive error.[8] This again demonstrates the necessity of having the examinations conducted by scientifically trained men.

EQUIPMENT.

The use only of two standard cards of Snellen's test types for testing distant vision, with letters arranged in different orders, is hardly sufficient, as they can be memorized forwards and backwards. There should be several cards, especially for the distance of 20 and 30 feet, with letters arranged differently. The size of these letters for the different distances are to conform to the Snellen standard; that is, they should subtend a 5-minute angle at the distance they are supposed to be read, and each stroke of each letter should subtend a 1-minute angle. This, also, for the sake of conformity, and should be specifically stated in the rules, as the various test type cards in the market purporting to conform to Snellen's standard vary greatly from such standard. The set presented here, made by F. A. Hardy & Co.,[8] conform perfectly. The semaphore charts are merely an adjunct test to be used at the discretion of the examiner. They are scale reductions of semaphore signals and at 20 feet represent a signal seen at one-half mile.

The measurement of the letters on the standard reading test card should be designated for the purpose of uniformity. Many of the English roads still use the dot test, which originated with the army and still is in use, covering up a portion of the card and having the candidate count the dots at 15 feet distance. The English roads employing ophthalmologists to make these examinations use the Snellen test types at 20 feet (6 m.) as we do.

ILLUMINATION OF TEST TYPE CHARTS.

The question of lighting the test types is of as great importance as having the letters conform to the Snellen standard. It has been the cause of a great many controversies over the vision of an employé between the non-professional examiner and the company oculist. The visual acuity will naturally not be as great with poorly lighted card as with one well lighted. Sunlight is, of course, the ideal luminant, but it is absolutely impossible to secure uniformity of illumination from this source; consequently, artificial light has largely taken its place, but so far without securing uniformity of illumination, except in a few instances where ophthalmologists are using the same apparatus. There are many methods of illuminating test type, and each differs in its intensity of illumination.

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[8] Black, Nelson M.: "A New Series of Semaphore Charts for Testing the Vision of Railroad Employés." American Journal of Ophthalmology, February, 1905.

Dr. Charles H. Williams'[9] paper before the Ophthalmic Section of the American Medical Association this year was a start toward uniform illumination, and a committee was appointed by the chairman of the Section to determine upon a standard of illumina-

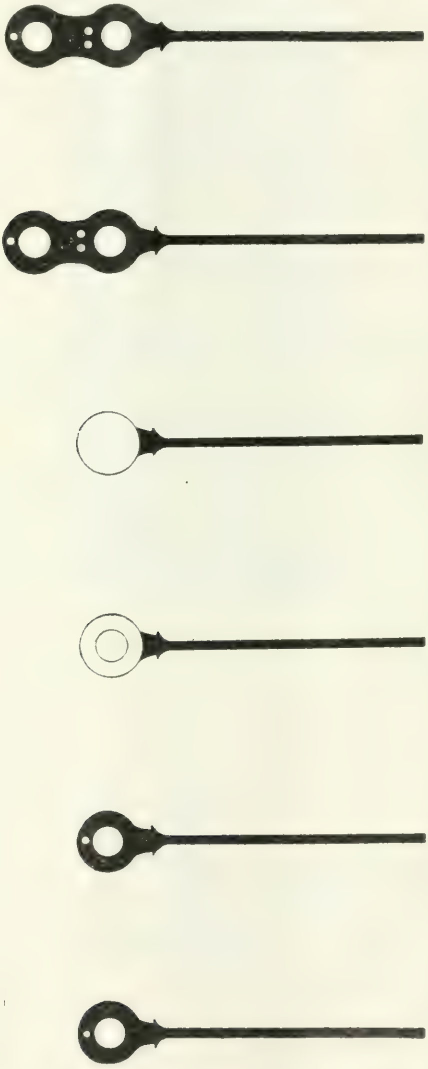

Fig. 7. The author's new Disc or Hall Charts for testing vision of railroad employes, made by F. A. Hardy & Co. The center areas in the charts are colored red and green for various indications.

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[9] Williams, Charles H.: "A More Uniform Standard for the Illumination of Visual Test-types"; Journal of the American Medical Association, June 23, 1906.

tion of test type charts to be expressed in candle-power units or some standard used for measurement of light. The adoption of such a standard and the appropriate means of measuring it tend to standardize the amount of illumination of test charts as well as having the letters of a standard size and exhibited at a standard distance. The writer has overcome this difficulty to his entire satisfaction by the use of test types engraved upon porcelain and transilluminated by the use of electric lights.[10] (The Luminous Test Type Cabinet made by F. A. Hardy & Co.) Here one has always an equal and constant source of illumination relieved of any reflection, which is so objectionable and tiring to the eye with the test charts illuminated with reflected light.

COLOR PERCEPTION.

Holmgren's colored worsteds, as simplified by Dr. Thomson, are used for dectecting defects of color perception. The instructions in the rules for using this test differ materially from those given by Dr. J. Ellis Jennings in describing the test in his book on "Color Vision and Color Blindness."

"The test consists of two different sets of worsteds, which must always be kept apart, not only in their corresponding part of the box, but also in testing men. The first set consists of a large green sample skein, and twenty small skeins, each marked with a bangle having a concealed number, from one to twenty. The odd numbered are different shades of green, while the even numbers are grays, light browns, etc. The second set consists of a large rose sample skein and twenty small skeins which are numbered from 21 to 40. Here the odd numbers are different shades of rose color, while the ten even numbers consist of blues, greens and grays. The worsteds are to be kept from the light in the double box, one side of which is colored green and the other rose, to aid the examiner in keeping the series separate.

In testing the worsted is taken from the green part of the box and placed upon a table in a confused mass. The candidate is requested to select ten tints to match the large green skein. When this is done and the numbers recorded the worsted is removed and the examiner proceeds with the second set. For the use of the surgical expert two more large test skeins have been added; one, C, yellow, and the other, D, blue. The test C is exposed, and the candidate is asked to match it, if possible, from the skeins 1 to 20. If normal in color sense he will decline, or at the most only take the yellow-green skein; but if color blind he will select a number of the green skeins, which should be recorded. Then use test D, the blue skein, and let him match it from skeins 21 to 40. If normal or green blind he will select blues only, but if red blind he will pick out a series of roses, which should be recorded."

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[10] Black, Nelson M.: "A Luminous Test Cabinet:" Ophthalmic Record, April, 1904.

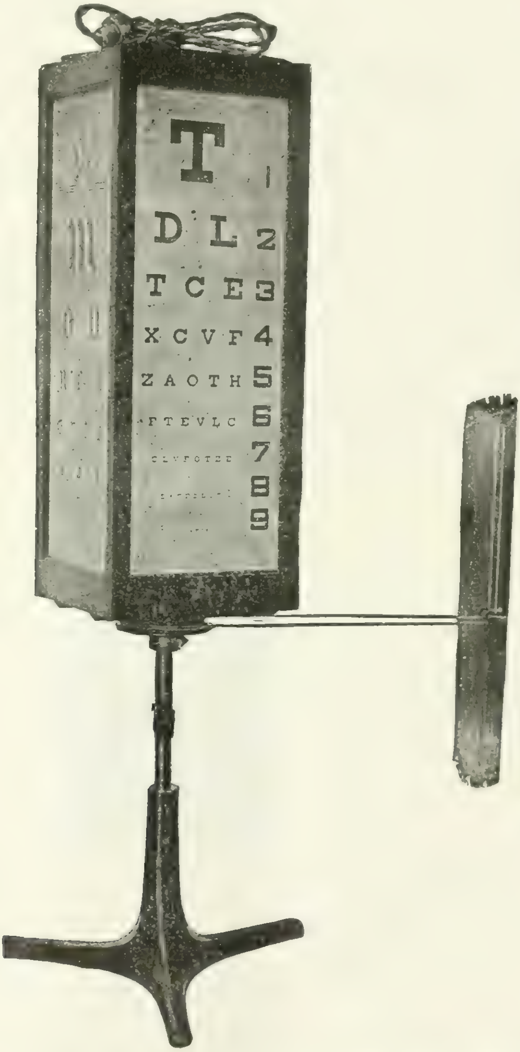

Fig. 8.—Illuminated test chart made by F. A. Hardy & Co., from designs of author.

A supplementary test for color perception may be used if desired. This consists of a lantern showing a number of colored lights which can be varied in size and intensity; several of these are well known. Those of Thomson, Williams and Eldridge-Green are in use upon a number of roads.

It is a conceded fact that the worsted test of Holmgren will not detect all kinds of color defects, neither will any lantern test, but it must also be granted that no other test of a practical nature will, and that the Holmgren test or its modifications are equal, if not superior, to any yet devised. "An exact test can only be made by the spectroscope by the determining limits of the spectrum and the places of the neutral lines." This, however, is not practical for use in examining railway employés. The color defectives MOST TO BE FEARED and the ones which neither the Holmgren test nor any lantern test yet devised will detect are known as "Chromic Myopes";[11] up to a certain distance their color vision is normal, beyond they can only determine that one color is darker or lighter than another.

Dr. Charles A. Oliver[9] has called especial attention to this class of color defectives and suggested a series of tests to be made with objects placed at the distance they are used in actual practice, essentially a road or field test.

FIELD TESTS.

There is no doubt a field or road test would be the most satisfactory for all parties concerned, and I am sure that any one who has spent very much time on an engine will agree with this; the men are in the same position and the same environment under which they work, and if they can pass such a test and meet the requirements it certainly must be more satisfactory to those examined. A number of superintendents of motive power have stated they often resort to such a test in disputed cases. John G. Robinson, chief mechanical engineer of the Great Central Railway, England, writes: "Any men who fail with the 'dot' test or color circle are tried in actual working on the line, and if not quite satisfactory they are sent to an oculist to be examined and reported upon."

There are several objections to this method; in the first place it consumes so much time; secondly, the roads would hardly go to the expense of building a testing line of sufficient length for such a purpose, and the congested condition of the traffic on the majority of the roads would not warrant the undertaking of such a method, as, in order to carry out the scheme fully, the examiner would have to arrange beforehand for designated signals to be in certain positions; thirdly, there would have to be a test for signals by night as well as by day; fourthly, the tests would not be equal, for some men would be tested under perfect weather conditions and others under adverse. The result is we must be content with an office or inside test. The writer has about perfected a supplementary color test which may be used inside. The semaphore lamps used in actual block signaling are the source of illumination. The effect of distance is obtained by reducing lenses, which produce a similar effect to that observed when looking through the wrong end of an opera or field glass. By means of a formula the apparent distance at which the lights are seen may be calculated.[12]

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[11] Scripture, Prof. E. W.: "Color Blindness and Its Tests;" Transactions New York Railroad Club, November, 1899. Wilson, George: "Researches on Color Blindness," Oliver, Charles A.: "A Case Illustrating the Inadequacies of the Present Methods of Recognition of Distant Color Signals;" Annals of Ophthalmology, April, 1904. Frank, M.: "Normal and Subnormal Color Perception," Ophthalmic Record, August, 1904. Eldridge-Green: "Color Blindness." Jennings, J. Ellis: "Color Vision and Color Blindness."

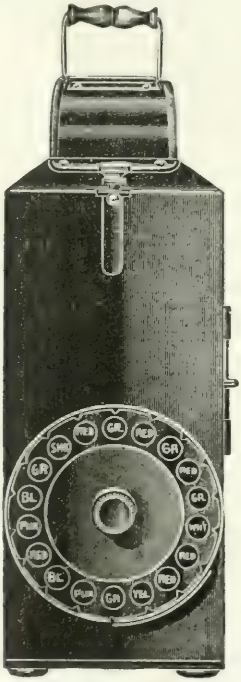

Fig. 9.—Dr. Charles H. Williams' lantern for testing color vision.

Another dangerous class of color defectives are those who have no difficulty in determining saturated hues, but if the intensity be diminished are very uncertain; they are dangerous when weather conditions reduce the intensity of the night signals; such cases the non-scientific man will pass in the majority of instances; again the necessity for a scientifically trained man.

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[12] Black, Nelson M.: "A New Supplementary Test for Color Vision, Journal of the American Medical Association, June 23, 1906.

It would seem a little more stress should be laid upon the question of re-examination. The rules require "re-examination for acuteness of vision, color perception and hearing shall be made at periods of not less than two years," the number of years intervening between the re-examinations to be left to the discretion of the medical examiner.

Dr. J. F. Pritchard, chief surgeon Wisconsin Central R. R., states: "I have found men who were insane, some with diabetic retinal hemorrhages, with absolute loss of hearing, one with advanced locomotor ataxia, and another who had been subjected to cataract extraction for both eyes.

"I am convinced by long study of the situation that there can be no greater economy practiced by these companies than to make the health and effectiveness of their men a question of thorough, constant and skilled supervision. Repairs and maintenance would be lessened from more thorough work and less accidents, the cost of operating reduced greatly from less loss of time on the road, and, in fact, from my point of view, the railway which does not make a careful selection and supervision of its human machinery a constant study is making a loss daily, and will hardly be able to compete without bankruptcy with the wideawake lines when times are not flush."

The viewpoint of an ophthalmologist would suggest that re-examination for sight and color vision should take place at least each three years up to the age of 35 and after any severe illness or accident or any occurrence which seems to cast doubt on the visual capacity of the individual. Re-examination should also be made more frequently of men known to be suffering from syphilis, albuminuria, diabetes or acute or chronic eye diseases. They should always be examined before promotion. After 35 they should be re-examined semi-annually to ascertain if there has been any further change in vision, or, if glasses are worn, if they fully correct the visual defect.

RAILROAD ACCIDENTS.

It must not be thought for one moment the writer is of the opinion that any large percentage of the railroad accidents we constantly read about, and the reports of which the Interstate Commerce Commission harrow our souls with, are due to defective eyesight or color vision or to the non-scientific and quite frequently lax manner of conducting the examinations; nevertheless, many accidents have happened as a result of trains being controlled by men having defective color perception and poor vision, and if by establishing a standard of requirements and adhering to it to the letter even one life may be saved, certainly our object has been partially obtained. In the main, the railroads have adopted these measures for the prevention of accidents and because public opinion has demanded them; however, the great saving in expense resulting from their adoption is no small item and has been to a large extent the means whereby other more stringent measures have been and will be adopted.

There is no doubt that the reports of the Interstate Commerce Commission lead to a false impression as to the number of lives lost and number of persons seriously injured by railway accidents, while the newspapers of the country with their scare head lines not only maliciously exaggerate the actual conditions, but glory in attempting to crucify the railroads for those accidents which are absolutely unavoidable.

CONCERNING THE SIGNS IN THE RETINA OF PERSISTENT HIGH ARTERIAL TENSION AND THEIR DIAGNOSTIC AND PROGNOSTIC IMPORT.*

G. E. de Schweinitz, M.D.
PHILADELPHIA.

The eyeground lesions of persistent high arterial tension, when this is a symptom of arteriosclerosis, may conveniently be divided into those which are *suggestive* and those which are *pathognomonic.*

The suggestive signs include uneven caliber and undue tortuosity of the retinal arteries, increased distinctness of the central light streak, an unusually light color of the breadth of the artery, and alterations in the course and caliber of the veins.

The pathognomonic signs include changes in the size and breadth of the retinal arteries of such character that a beaded appearance is produced; distinct loss of translucency; decided lesions in the arterial walls, consisting of white stripes in the form of perivasculitis; alternate contractions and dilatations of the veins, and particularly, and this is the most important of the signs, indentation of the veins by the stiffened arteries in the same manner as a solid rod would indent a rubber tube where lying across it. Sometimes the vein is simply flattened slightly at the point of crossing, or merely pushed aside, or its caliber is contracted, so that beyond the point of crossing there is an ampulliform dilatation. In addition to these well-known signs, there may be changes in the venous walls, so that they are bordered with white stripes, and the veins may be exceedingly tortuous and contain varicosities. Finally, there are edema of the retina in the form of gray opacity around the disc or following the course of the vessels, hemorrhages manifesting themselves as linear extravasations, or roundish infiltrations, or sometimes assuming a drop-like form.

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* Paper read before the American Ophthalmological Society, June 2, 1906.

1. The Age at Which These Signs May Occur.—As Mr. Marcus Gunn[1] has well said, and we are much indebted to him for the best study of this subject, old age alone does not produce these changes. All can substantiate his statement that perfectly healthy retinal vessels are often seen in persons who have reached old age, even 70 or 80 years of life. Doubtless the visible changes, again to quote Mr. Gunn, usually begin between 40 and 50. I have seen them, however, at an earlier age, one of the most pronounced examples being a man aged 37. In other words, if the cause of persistent high arterial tension is sufficiently prolonged, these alterations will occur at any age at which the pathological condition to excite them arises.

2. The Earliest Indications.—As has been stated in the beginning of this communication, certain of these signs are only suggestive, and they have already been enumerated and must not be disregarded if they are associated with other symptoms of the disease. According to my experience, three signs may be seen very early, as follows:

(a) A markedly corkscrew appearance of certain arterial twigs, either of those which skirt the macula or, more significantly, of one or more small branches which arise from the larger vessels of the main distribution, which themselves are apparently normal. In other words, and this has been noted many times before and is also referred to by Mr. Gunn, the whole artery is not affected. This is a particularly striking feature if, as is frequently the case, a single twig descends vertically from a transverse branch and assumes this corkscrew condition.

(b) A flattening of a vein where it is in contact with an artery, and at this spot it has somewhat the appearance that a strap would have if laid across a solid tube, provided the vein passes over the artery. If the artery passes over the vein, the appearance is analogous to that which would be produced if the strap were placed across the lower surface of the tube. The vein is only slightly compressed at this stage, but is not yet indented sufficiently to produce an ampulliform dilatation of the vein beyond the point of crossing. It has seemed to me that this appearance is a little more frequent in the inferior temporal retinal vessel distribution than elsewhere or perhaps, to speak more accurately, appears there first.

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[1] Trans. Ophth. Soc., U. K., xviii, 1898.

(c) The nerve-head has an appearance often loosely described as "congested." But this appearance differs from that presented by the so-called streaked hyperopic disc; it is unlike the flannel-red surface of the papilla which merges into an equally flannel-red eye-ground, so commonly the result of prolonged eyestrain, exposure to bright light and intense heat, or seen in certain constitutional conditions; and, finally, may be distinguished from the early stage of neuritis, with the somewhat juicy red aspect of the disc. It is a dull red appearance which is presented and differs from the franker congestions, as the unhealthy flush of a cheek differs from the brighter color of a normal blush. Subsequently the later signs develop: marked indentation of veins, with ampulliform dilatation beyond the point of pressure, varicosities, "silver-wire" arteries and perivasculitis, hemorrhages, etc.

3. Significance of the Signs.—The facts just detailed and the appearances described are well known, and hence we may consider them immediately from the diagnostic standpoint. It is undoubted that these retinal vessel changes have not merely a local significance; but are one of the most important indications of that condition to which the term arteriosclerosis is usually given.

As Alfred Stengel[2] has well said, "Arteriosclerosis in its fully-developed stage can be recognized with no great difficulty in most instances, but a positive determination of the existence of the earlier stages is extremely difficult, but most essential if we are to accomplish anything in the way of controlling the progress of the disease." Hence, we welcome aid from all sources.

It is not the province of the present paper to discuss the causes which lead to arteriosclerosis—laborious work, nervous strain, abuse of alcohol, overfeeding, infectious diseases, notably syphilis, certain metallic poisonings and heredity.

We are concerned here with its early recognition, and particularly with the help which ocular examinations can give us in this respect. The general clinician interests himself especially for the purpose of diagnosis, to quote from Stengel's analysis, with a study of the pulse by palpation, with the character of the first heart sound at the apex and the second sound at the aortic area, with the sphygmogram, and with the results obtained by instrumental measurement of arterial tension. Because I shall wish to refer to the last method of diagnostic precision in the subsequent pages, and because it seems to me that we, as oculists, should be familiar with the technique, I have asked Dr. George Norris, one of our most accomplished young clinicians, who has much concerned himself with such investigations, to write the following brief account:

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[2] American Medicine, January 2, 1904.

"The necessity of accurate instrumental measurement of the arterial tension is no longer questioned. Cases which, owing to obesity or vascular rigidity, give an entirely erroneous impression even to the *tactus eruditus* can be satisfactorily gauged by means of the sphygmanometer. Not only should we ascertain the systolic pressure, but also the diastolic tension, which is of equal and sometimes of greater importance, to say nothing of the fact that by knowing both of them we are possessed of the mean pressure.

"There are two instruments upon the market by which the systolic and the diastolic pressures may be measured with sufficient accuracy to be clinically reliable, and which are also compact enough for practical utility—the Stanton and the Janeway sphygmanometers. Of these the former is preferable, because it is of more substantial construction, less troublesome to transport, more quickly set up, and because it gives more constant and satisfactory readings of the diastolic pressure.

"The Stanton apparatus is a modification of the Riva-Rocci instrument, and consists of a hollow rubber bag closed at both ends, which is connected at its middle by means of a rubber tube with a mercury manometer, to which is attached a scale graded in millimeters. The rubber bag, which is applied around the patient's arm, is held in place and rendered externally indistensible by an adjustable canvas cuff. To determine the systolic pressure the bag is inflated by means of a syringe bulb, thus expanding the arm-encircling bag, until the pulse disappears at the wrist, or, better, by noting the point on the manometer scale where the pulse reappears after it has been obliterated. The diastolic pressure is obtained by observing the point at which the greatest oscillation of the mercury occurs when the air is being allowed gradually to leak out.

"Blood pressure varies considerably within physiological limits. In healthy young adults the systolic pressure varies between 100 and 140 mm., the diastolic between 80 and 90. In children the figures are somewhat lower, and in advancing years they tend gradually to increase. Practically, a systolic pressure above 160 and a diastolic above 130 are the extreme upper limits of what can be considered physiological, even in advanced life. During bodily exertion or mental excitement these figures may be reached or exceeded, but such conditions are merely transient. In women the pressures are generally about 10 mm. lower than in men of a similar age.

"Clinically, hypertension is of greater importance and frequency than hypotension. It not infrequently happens that in the former is the first sign of beginning renal or vascular degeneration which is detected. Janeway, in a careful study of 130 cases, found that in 10 per cent. abnormalities of tension would have been entirely overlooked but for the employment of the sphygmanometer. In cases with marked hypertension, in which the superficial arteries fail to show any important sclerosis, we may confidently assume that we have to do either with splanchnic sclerosis or with spastic hypertonus of the smaller arteries or arterioles, either with or without renal changes. Such conditions may often be noted during the early and still remediable stages of the morbid process. In such cases the systolic pressure is generally more increased than diastolic."

To the four diagnostic indices of the persisting high arterial tension[3] as an early condition of arteriosclerosis, namely, the condition of the pulse, the character of the heart sounds, the tracings of the sphygmogram, and the readings of the sphygmanometer, it would seem, on the authority of the studies made by Preston, Friedenwald, Hirschberg, Gunn, Raehlmann, Bull, Alleman, Woodruff, myself and others, that the ophthalmoscopic signs already detailed should be added.

That this important aid has not escaped the attention of general clinicians is evident from what follows: Thus Stengel[4] writes: "The ophthalmoscope may reveal the positive evidences of vascular disease before the disease (arteriosclerosis) has become marked." And, again:[5] "Finally, I wish to call attention to the possibility of an early diagnosis by ophthalmoscopic examination."

But the value of the ophthalmoscope does not end here. To elucidate what is meant I quote once more from Stengel: "If the four symptoms I have named (the condition of the pulse, the character of the heart sounds, the increased tidal wave on the sphygmogram and the elevation of tension recorded by the sphygmanometer) were found in arteriosclerosis alone, the prognosis of diagnosis would be greatly simplified, but this is not the case. There are numerous and varied conditions of the system, organic and nervous in origin, that elevate pressure nearly constantly, and in which arteriosclerosis has no part, except, perhaps, as a consequence. Any one of these conditions may occasion the four signs I have discussed."

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[3] It is possible that in the very early stages of arteriosclerosis the blood pressure may be lowered instead of raised, but, as Stengel points out, such preliminary lowering of blood pressure is probably quite temporary and rather occasional than constant during the brief period of its existence.

[4] Pennsylvania Medical Journal, August, 1904.

[5] American Medicine, vol. ii, No. 1, pp. 9-11, 1904.

So far as I am aware, the ophthalmoscopic signs which have been detailed are produced by no other condition except the persisting high arterial tension of arteriosclerosis, and therefore eyeground examination is of paramount importance in the early recognition of vascular disease, and may render signal aid in the interpretation of symptoms caused by the derangement of the functions of important organs, which in their turn are dependent upon sclerotic changes in their smaller vessels, although there is as yet no decided alteration in the general circulation.

But does the ophthalmoscope at this early stage show the lesions which have been reported? In so far as the early stages of arteriosclerosis of the so-called cerebral type are concerned I believe it does, and believe, moreover, that it is not alone with these types that the retinal lesions are found. Of course, sometimes examination is negative, and it would require a large amount of research and careful ophthalmoscopic examination in connection with clinical investigation, and also, when opportunity afforded, with postmortem examination, accurately to determine the comparative frequency of retinal changes in the various groups of arteriosclerosis exclusive of the cerebral types. Evidently, however, the ophthalmoscopic examination should never be omitted as part of the investigation of any suspected case of early arteriosclerosis, and if indented veins and other ocular signs are present, then its findings are positive and in a certain sense more valuable than the four symptoms now so many times described. Certainly, we may say with Marcus Gunn:[6] "Ophthalmoscopic examination is one of the most ready clinical means for the early detection of important arterial changes," and I think we may go further and say if the findings are positive they are diagnostic.

Reverting next to the question of prognosis, this naturally divides itself into that which is related to the eye and its functions and that which concerns the general economy; in other words, the prognosis *quoad visum* and *quoad vitam.*

1. The Hemorrhages and Their Results.—These naturally depend upon the size and situation of the extravasations, which, if small and scattered, may not at all or only slightly interfere with vision, while if they are large and centrally placed they greatly disturb direct vision. But we know their mischief-making qualities do not end here, as they may (a) break through the hyaloid and invade the vitreous (vitreous hemorrhages); (b) result in proliferating retinitis; (c) cause glaucoma, and (d) if extensive, detach the retina and create a loss of function in such areas of the retina which are deprived of nutrition by their presence and the diseased vessel from which they have proceeded.

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[6] Trans. Ophth. Soc., U. K., xviii, 1898.

In illustration of some of these complications the following cases may be quoted:

Case 1.—*Large Subhyaloid Hemorrhage Bursting in the Vitreous; Complete Recovery.*—Miss W., aged 55, plethoric, but in apparently good health with the exception of an attack of brachial neuritis, had sudden failure of vision of the left eye on Feb. 20, 1902. Ophthalmoscopic examination revealed a disc, moderately congested, large, uneven, deeply indented veins, and on the nasal side of the disc a huge, sheet-like hemorrhage, spreading away into the far periphery, and along the upper temporal vein a number of small round hemorrhages. The situation of the hemorrhage was apparently subhyaloid. On the following day the hemorrhage burst through into the vitreous, which was so completely filled that no reflex was obtainable and vision was reduced to light perception. The right eye possessed normal vision and there were early signs of arterial degeneration in the retinal vessels. The treatment consisted in absolute rest, systematic diaphoresis by means of cabinet baths and the internal administration of alteratives. Slowly the hemorrhage disappeared, and in two months vision rose to 6/12. Six months later it was 6/6 and no trace of the hemorrhage except a few fine vitreous flakes was discoverable. Since that date until the present time the patient has retained good health and there has been no recurrence of hemorrhage in the eyes, in spite of the fact that she has submitted to a serious pelvic operation. She has, however, led a most careful life, and the vascular tension has been kept normal with suitable remedies and dietetic measures.

Case 2.—*Sclerosis of the Retinal Vessels; Retinal Hemorrhages; Obstruction of the Upper Temporal Artery; Later Typical Proliferating Retinitis.*—Mr. M. H., aged 55, six weeks prior to his examination on Dec. 4, 1900, experienced sudden depreciation of vision of the left eye, which, without correction, was 6/45, the vision of the opposite eye being 6/6. Ophthalmoscopic examination revealed in O. S. numerous round, striated and sheet-like hemorrhages and spots of white exudate in the macula. The vessels were sclerosed, and the veins typically pressed and indented. On the right side there were no hemorrhages; moderate sclerosis of the arteries was visible, with distinct indentation of underlying veins. The systolic tension was 180 and the diastolic tension 130. The urine contained a trace of albumin and a few hyalin casts. There was marked arteriosclerosis of the superficial vessels, the temporals standing out almost like whip cords. The patient was placed upon the strictest treatment, Dr. H. A. Hare being called in consultation, with gradual improvement in general health and in the ocular conditions until Oct. 9, 1901, when evident obstruction of the upper temporal artery of the left side was visible. Gradually this vessel was converted into a white cord, and on June 4, 1902, the earliest stages of proliferating retinitis were evident. A vascular veil began to form over the disc, which gradually pushed its way forward into the vitreous, which is at the present time largely filled with vessel-bearing veils of whitish connective tissue which have arisen from the retinal hemorrhages previously described. In the right eye, while now and then a small hemorrhage has appeared, and while the evident arteriosclerosis and indenting of the veins are most marked, there has been no large extravasation and vision has remained normal. The case has been a triumph, in so far as the right eye is concerned, of careful systematic treatment, chiefly with iodids and nitroglycerin. The arterial tension in this case is notable. The systolic pressure has been as high as 190 and the diastolic 140. It has been influenced by remedies so as to go as low as 160 systolic and 125 diastolic.

Case 3.—*Retinal Hemorrhage; Glaucoma Passing Into Absolute Glaucoma.*—Miss E. K., of gouty ancestry and gouty habit, with albuminuria and occasional attacks of hematuria, one month prior to her examination became conscious of dim vision of the right eye. When examined in consultation with Dr. Horatio C. Wood on May 23, 1903, vision was reduced to counting fingers, there were marked low-grade neuritis with slight swelling of the disc, numerous streaked and plaque-like hemorrhages, and distended and distorted veins, particularly the inferior temporal vein, which was thrombosed and covered and surrounded by numerous hemorrhages. The vision of the left eye was normal; it showed also the marked signs of arteriosclerosis. The patient continued to do fairly well until the spring of 1904, or about eight or nine months after her attack, when glaucoma developed. She was not under expert observation at the time, and when she arrived and again came under my care the tension was + 3, the anterior chamber almost obliterated and the lens so hazy that fundus examination was impossible and vision was entirely lost. Slowly the ordinary appearances of absolute glaucoma with obliteration of the chamber and discoloration of the iris and chalky whiteness of the lens supervened. At one time enucleation was deemed necessary, but was declined. Slowly the pain of the glaucoma subsided, until the eye at the present time represents the late stage of that disease, but is free from congestion and from pain. The left eye has retained its normal vision and there never have been hemorrhages in it, although the well-marked early signs of arteriosclerosis are present. The treatment has been systematic and careful since the attack of glaucoma.

Case 4.—*Extensive Arteriosclerosis of the Retinal Vessels, with Perivasculitis, Hemorrhages and Exudates; Large Detachment of the Upper and Outer Portion of the Retina.*—Mrs. X., aged 65, presented herself for examination with the typical signs of arteriosclerosis. The details of the case are omitted except to say that a large detachment of the upper and outer portion of the retina took place in the area of the greatest vascular lesions. The appearances of the retina were exactly those produced by growth, and apparently depended upon an exudate which had formed between the chorioid and the retina. The subsequent history of the case is unknown.

Two other ocular conditions deserve mention in connection with the present discussion, and these are referred to especially by Mr. Marcus Gunn in his well-known paper.

He points out that in certain cases of retrobulbar neuritis irregularity in the caliber of the retinal artery may be observed, and suggests that the small artery which passes from the central artery of the retina and supplies the axial fibers of the optic nerve may be subject to such a degeneration, and therefore create a disturbance in the nutrition of the axial fibers and the symptoms of a retro-ocular neuritis.

He has also noted, as must all of us, the frequency with which lenticular opacities appear in eyes the retinal arteries of which show the signs of degeneration that have been observed, and suggests that the ciliary arteries may be similarly affected and therefore the nutrition of the lens suffer.

Reference has already been made to the association of glaucoma with retinal hemorrhages, and, as Mr. Gunn points out, it is not improbable that arterial degeneration of this character may be responsible for the so-called hemorrhagic forms of this disease. Another point worth mentioning in connection with the prognosis is that high grades of arterial degeneration in glaucoma, as one frequently sees them, particularly silver-wire arteries and indented veins, would render the prognosis of operative interference unfavorable, and it is not improbable that they may be responsible for the hemorrhages and other complications which have occurred after well-placed iridectomies in conditions of this kind.

I come now to refer to a matter which has interested me very much, and which all of us must have seen many times, namely, a *persisting asthenopia* in patients, frequently women, in the late forties, after presbyopia has been established, or is already well marked, an asthenopia which yields not to optical therapeutics. Often these patients present the ordinary symptoms of neurasthenia, which in their turn are unquestionably the outcome of a general arteriosclerosis, and I have found that the asthenopia not infrequently disappears, or is materially modified, if high arterial tension is reduced to the normal by means of proper dietetic measures, and particularly by the use of nitroglycerin.

We come, finally, to take up the question of a general prognosis, and the most important relationship is, to use the words of Mr. Gunn, the intimate connection between these ophthalmoscopic changes and the later evidences of cerebral vascular disease. Any one going over his case books would surely find, as Mr. Gunn has, a number of cases which have within comparatively short periods after discovery of these retinal vessel changes suffered from cerebral apoplexy, and the paper need not be burdened with case histories, although many have occurred in my practice. But these retinal vessel changes are not only indicative of arteriosclerosis and especially of end-arterial disease in the cerebrum, but are most interesting in the study of chronic nephritis and are important from the diagnostic standpoint, because, as has been well stated, they are often obvious in cases in which the usual retinitis has not developed. In other words, they are part of the symptomatology of arteriosclerosis, which may be associated with or eventuate in renal sclerosis, and as clinicians of note have stated that fully 90 per cent. of the cases of chronic interstitial nephritis are primarily arterial in causation, this relationship becomes the more important. Furthermore, these retinal vessel changes may be evident where the usual retinitis may not supervene, because they are significant of a process which may terminate fatally before the development of a fully established nephritis.

I come finally to say a word in regard to the duty of the ophthalmologist when he discovers, as he not infrequently does, the early signs of arterial degeneration in the retinal vessels, notably, the first indications which have already been described. Many of these patients are entirely unconscious of the state of their vessels and often, indeed, they are without symptoms or discomfort. We see these patients when they come for presbyopic correction, or for alteration of glasses; we find the lesions, in other words, casually. Naturally, I do not refer to advanced cases, with hemorrhages, exudates and grave visual disturbances, but to the early lesions, beginning increase in the light-streak and flattening or indentation of underlying veins by rigid arteries. If a patient presents himself with a retinal hemorrhage or an exudate or a retinitis, we promptly have him generally examined. How often we see these early changes and say nothing more about it. To illustrate what I mean I will quote two cases:

Case 1.—Mrs. H., aged 58, presented herself on November 21, 1905, for the purpose of having her refractive error corrected, having no other symptoms except some inconvenience in reading. After the correction of a moderate hypermetropic astigmatism, vision rose to 6/5; with the proper sphericals added the reading point was normal. The media was clear, the retinas free from hemorrhage, but there were well-marked signs of beginning arteriosclerosis, the pressure on the veins being most marked, as I think it usually is, in the inferior distribution. One month later the patient began to suffer from slight indigestion, so called, and again a month later presented herself because of a blur before the left eye. There were now, in addition to the signs already described, large hemorrhages in the inferior portion of the eyeground and small round and dotted hemorrhages scattered elsewhere. A few small hemorrhages were also found in the right eye. The veins were more irregular than at the last visit and their indentation greater. The systolic pressure was 190, the diastolic 130. The urine contained the following ingredients: A slight amount of albumin and a few hyalin casts. She was immediately placed at rest and the usual treatment instituted, with marked improvement at the end of three months.

The question which I have often asked myself in these and similar cases is: If I had measured her arterial pressure at the time she was in my office, or caused it to be measured for me, and had I instituted treatment immediately to reduce the high arterial tension, would she not in all probability have been spared the retinal hemorrhages which subsequently appeared? And yet there was nothing in the eyeground other than a slight indentation of the veins, and she had no symptom of discomfort. A second case is even more striking:

CASE 2.—Mr. L., aged 48, the principal of an important school, applied for a change in glasses which he had been wearing for about three years. Vision was perfectly normal after the correction of a hypermetropic astigmatism, and suitable presbyopic lenses were given. It was noted that the veins were somewhat uneven and pressed upon, and there was a little brick-red congestion of each disc. The patient was apparently in perfect health, and had no thought of doing anything except the arduous work which his duties entailed. Within two weeks after his visit, he was suddenly seized in the night with a large cerebral apoplexy, and died without returning to consciousness.

Again, except for a little indentation of the veins, there was nothing to indicate any elaborate general examination, and yet, had the arterial tension been measured, and had the man been taken from his active and arduous duties and at once been placed on a rigorous dietetic and medicinal regimen, is it not likely that the apoplexy might have been averted?

It is not necessary to elaborate this side of the discussion by the recitation of more case histories. Evidently, the plain duty of the oculist is to search carefully throughout the eyegrounds of his middle-aged patients for any indications of sclerosis of the retinal vessels, and if they are present, even though the patient may be unconscious of any signs of arteriosclerosis, he should be recommended to thorough general examination and notably to such which includes estimation of the systolic and diastolic blood pressures. If the eyeground examinations are confirmed, suitable treatment may prevent disastrous general consequences and, perhaps, the serious ocular lesions which later might otherwise arise. It should not be forgotten that where ophthalmoscopic examination reveals positive signs of sclerosis of the retinal vessels, these assume, with comparatively few exceptions, a position of diagnostic importance in the study of arteriosclerosis which equals, if it does not exceed, certainly in so far as cerebral arteriosclerosis is concerned, that furnished by the four important clinical symptoms of the disease. Hence the necessity of ophthalmoscopic examination in the study of any set of obscure symptoms which may be connected with early arteriosclerosis.

SILVER PREPARATIONS IN CONJUNCTIVAL DISEASE.*

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BOSTON.

(Illustrated.)

Silver preparations have been used and advocated for many years in treatment of diseases of the conjunctiva, but have proved to have no pre-eminent therapeutic value except in gonorrheal infection.

At various times in the past thirty years or more, other remedies have been brought forward to supplant them and earnestly advocated, but upon trial the profession has abandoned them, one after another, and returned to the use of silver. This return to former methods has been forced in each instance by the belief of the clinicians that they obtained better results by the use of silver.

No one appreciates more strongly than I do the value of pathological and bacteriological laboratories in the advance of medicine. The aid obtained from laboratory methods in the diagnosis of tuberculosis, malaria, diphtheria and many other diseases has been inestimable. In order to remember the great benefits conferred on mankind by laboratory experiments, one has only to recall the results of the clinical application of the principles of antiseptic surgery and its outgrowth, aseptic surgery, of the control and treatment of diphtheria, malaria and yellow fever. Nevertheless, it seems almost necessary at the present time to restate the fact that the relief of pain and the cure of disease is the object of all medicine and that all laboratory results must be tried and proved efficient in the hands of the clinician before they have established themselves as of value to mankind. It, therefore, follows that positive laboratory results are worthy of the gravest consideration by the clinician, however much they may run contrary to his previous opinions. Negative laboratory results, on the other hand, form a very poor foundation for clinical advance. The difficulty of reproducing in the laboratory conditions identical to those present in the human system is very great. It is true that we can produce conditions in the laboratory which are absolutely under our control, but the difficulty lies that in the conditions present in the human being are many factors of which we have at the present time no knowledge. These modify the laboratory experiments greatly and may even entirely overturn those conclusions.

It must, then, for a long time remain true that clinical bedside observations will have great value and should not be overlooked or scoffed at as unscientific. The difficulty with bedside observations lies largely in the multitude of accidental and adventitious circumstances which come in to modify results and of which the observer who sees the case only at intervals is unaware, and the importance of which he would perhaps instantly recognize if he devoted his whole time to watching and studying a single case.

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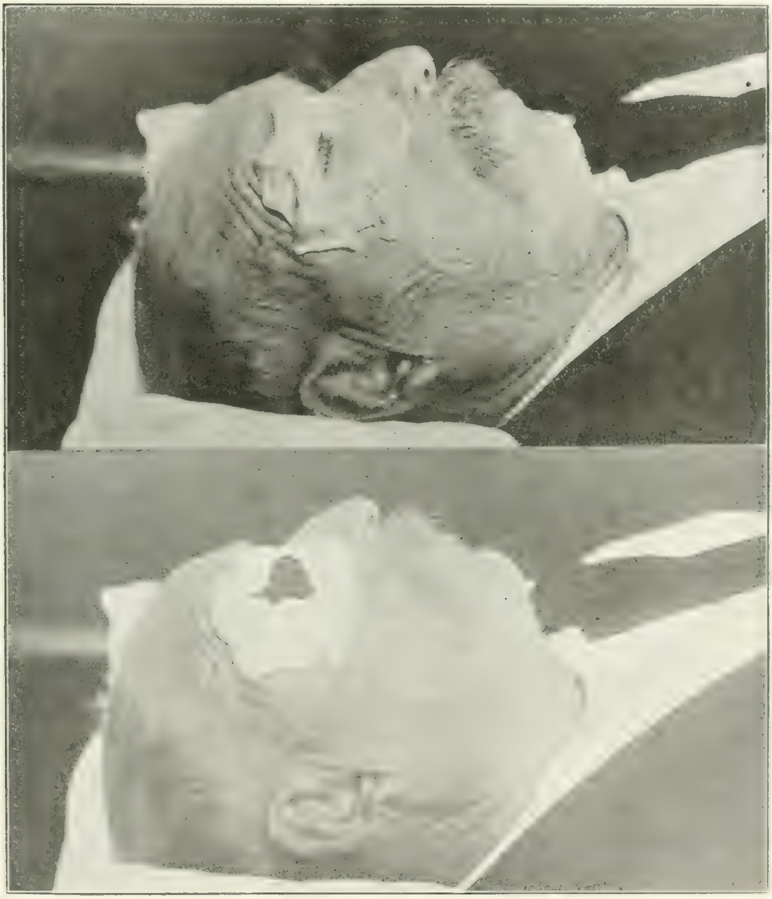
* Read before American Ophthal. Soc., June, 1906.

For this reason I have ventured to draw your attention to the importance of the clinical results obtained in such an isolation ward as the Gardner Building of the Massachusetts Charitable Eye and Ear Infirmary. Here the conditions surrounding the patient are absolutely under control. They are housed under the same conditions of temperature, ventilation, food, nursing and so on. Experienced nurses long stationed in the same ward, caring always for the same class of patients, serve all alike. The technique of the nursing and diet are the best we know and the same to each and every patient. When, therefore, a certain line of treatment has been pursued in such a ward for months or years, the results come as near absolute truth as it is possible to determine by any methods now known.

Dr. Derby's experiments (which are offered as proof of the inefficiency of the silver preparations), as presented to this Society at this meeting, are exceedingly interesting, well worth doing and recording. They have involved a great amount of labor, but the illustrate in several particulars the difficulties of trying to reproduce the clinical conditions in the laboratory. In the first place, the cultivation of the gonococcus in the laboratory is so difficult that it was abandoned and the experiments made with the staphylococcus aureus. Now, I think, it will be accepted by all gentlemen of large clinical experience that in the conjunctival sac at least the bacteriacidic efficiency of silver is much greater when the infection is gonococcic than when it is staphylococcic. It is highly probable also that the condition which is omitted in the laboratory and which makes the growth of the gonococcus on ordinary media so difficult may be the very one which makes silver efficacious in the treatment of the disease.

We must all remember the laboratory experiments reported some years since upon iodoform, with the conclusions that it was inert and had no bactericidal properties, but which were afterward modified by the discovery that in the presence of living tissues iodoform had active bactericidal properties.

It occurs to me that from the point of view outlined above, it is of interest to record the results of treatment in the Gardner Building of the Massachusetts Charitable Eye and Ear Infirmary. These statistics are a recapitulation of the statistics heretofore published by me and the addition of the statistics of the years since the last report.



The Putty Dam.

Successful results in the treatment of gonorrheal ophthalmia depend upon absence of corneal lesions, so that in making up these statistics it is necessary to confine our attention to such cases as entered the infirmary with clear corneæ.

In a paper read before the Section on Ophthalmology of the American Medical Association in 1904 at Atlantic City, I was able to report from the records from the Gardner Building the following statistics:

CASES OF OPHTHALMIA NEONATORUM ENTERING THE INFIRMARY WITH CLEAR CORNEÆ.

Treated with nitrate of silver, 50 cases, with subsequent corneal infection in 3 cases, or 6 per cent.

Treated with protargol, 150 cases, with subsequent corneal infection in 3 cases, or 2 per cent.

Treated with argyrol, 64 cases, with subsequent corneal infection in none.

In the two years since that report on ophthalmia neonatorum, all cases entering with clear corneæ, with the exception of 6 cases mentioned later, were treated with argyrol. There were 137 cases, of whom 4 had subsequent corneal infection; adding these to the above 64 cases to bring the record up to date, the result is as follows:

Treated with argyrol, 201 cases, with subsequent corneal infection in 4 cases, or 2 per cent., a result which no clinical observer will doubt is much better than was obtained under previous methods of treatment and very satisfactory when we consider the physical inheritance of most of these cases.

Results as favorable as the above are not to be expected in the treatment of gonorrheal conjunctivitis in the adult, and, therefore, one turns with interest to study the results obtained in adult cases.

In the paper above referred to there were reported

CASES OF GONORRHEAL OPHTHALMIA IN ADULTS ENTERING THE INFIRMARY WITH CLEAR CORNEÆ.

Treated with protargol, 32 cases, with subsequent corneal infection in 11 cases, or 66 per cent.

Treated with argyrol, 23 cases, with subsequent corneal infection in 7 cases, or 69.5 per cent.

In the last two years there have been admitted 29 cases, in 11 of which the cornea became involved, so that the statistics to date are: 52 cases, treated with argyrol, with subsequent corneal infection in 22 cases, or 42 per cent. +. In only 4 of these cases was there total leucoma or loss of the eye, giving as a result 58 per cent. of perfect recovery and only approximately 7½ per cent. in which the outcome was a blind eye.

Such are the results in what is practically a clinical bedside laboratory, and as such are entitled to respectful consideration. These statistics include all the patients with gonorrheal ophthalmia admitted to the ward with the exception of 6 cases treated by other remedies, the results of which were not encouraging, and 2 cases occurring in children of 2 and 5 years, respectively, which could not easily be included in the above classes. There was a corneal infection in each of these latter cases. They entered, respectively, on the seventeenth and twenty-third day of the disease.

The local treatment in these cases consisted of cleansing the lids externally often enough to keep them clean and the free instillation of a 25 per cent. solution of argyrol every two or three hours. In 14 of the cases a solution of 50 per cent. argyrol was used. It was suspected that a longer application of collyria to the eye might be more effective, and Dr. E. G. Hussey, house officer of the infirmary, devised the following ingenious method: The area about the eye was washed with alcohol to remove any traces of moisture from the tears and a roll some 5 inches long and 1 inch in diameter was made of well-worked ordinary painter's putty; this was used to construct a dam commencing at the nose and following the lower edge of the orbit to and upon the temple, thence, if necessary, along the brow to the point of beginning, and into the reservoir thus created was poured a 25 per cent. solution of argyrol, completely covering the eye and lids. This was allowed to remain from 10 to 25 minutes if it could be borne so long. The patient was encouraged to wink it freely into the eye. On my service this experiment was used in a number of cases which entered the house with corneæ which looked as if they were about to slough. It did not, as a rule, prevent perforation, but the extent of the slough was much less than we had reason to expect from the appearance of the eye and the course of the disease favorably modified. I think that this procedure deserves a thorough trial and will prove to have its uses.

My conclusions are that the results above shown establish the fact that the modern silver preparations are efficient in the control of gonorrheal infection of the conjunctiva, and that they have greater bactericidal properties in this disease than the laboratory experiments upon other micro-organisms would lead us to expect.

Reports of Societies.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Meeting of Thursday, June 14, 1906.

Priestly Smith, F.R.C.S., president, in the Chair.

Mr. Nettleship and Mr. Menteith Ogilvie gave an account, with diagrams and drawings, of a family in which 20 persons in 4 generations had a peculiar variety of partial congenital stationary cataract in the form of a perfectly circular, well-defined, homogeneous or finely granular layer, of no great density, situated between nucleus and posterior pole, about 4 mm. in size. At first sight it might be taken for a small lamellar cataract, but the invariable absence of any trace of a second layer and the certainty that the opacity lay behind the nucleus negatived that diagnosis, whilst there was equally good evidence that it lay in front of the posterior pole.

Some of the cases were first seen by Mr. Doyne at Oxford several years ago. These were re-examined by Mr. Ogilvie and were found to be unaltered, and he has recently discovered a large number of new cases. The change caused but little loss of visual acuity and only a desire to shade the eyes against bright light; hence the number of cases could only be determined by ophthalmoscopic examination of every accessible member of the family. Mr. Ogilvie examined about 50 persons, whilst one group living at Edinburgh was examined for the writers by Mr. G. Mackay. All the cases occurred in one branch of the family tree.

Mr. Simeon Snell (Sheffield) read a paper on "Steel Alloys Which Are Not Magnetic." He mentioned that during recent years steel alloys had been used in certain industries, and that those alloys had altogether different magnetic properties to ordinary iron or steel. Manganese steel, which contained 12 per cent. of manganese, 87 per cent. of iron and 1 per cent. of carbon, formed a very hard steel which was difficult to machine, but the point of interest was that it was non-magnetic. Its toughness made it useful for many purposes.

Nickel and iron was another alloy, and this was as susceptible to magnetism as pure iron, but the admixture of a small percentage of manganese and carbon completely altered the magnetic properties. Thus, a mixture of carbon, 0.4 per cent., nickel, 20 per cent., and manganese, .9 per cent., with iron was absolutely non-magnetic. Another point was that if this same alloy were quenched in liquid air it became magnetic.

Another alloy was chromium steel. It was magnetic, but less so than ordinary steel. Specimens of these were exhibited, and their magnetic peculiarities were demonstrated.

Mr. Snell remarked that fortunately the vast bulk of all steel splinters penetrating an eyeball came from steel which was magnetic, and, therefore, the use of the electro-magnet was unaffected. The possibility of steel being non-magnetic should be borne in mind, and inquiries made as to the particular kind of steel from which the fragment injuring the eye became detached.

In conclusion, Mr. Snell referred to other alloys which were highly magnetic. He had not, however, yet found that they were more magnetic than the soft iron in use had been.

Messrs. L. V. Cargill and S. Mayou described a case of miliary tuberculosis in an adult in which there was tubercle of the choroid with implication of one optic disc. The patient was a man, aged 21, who was admitted into Kings College Hospital in December, 1905. Although previously healthy, he had been feeling unwell for 6 weeks, and was supposed to be suffering from influenza. He perspired a good deal, was feverish and was losing weight. There were no physical signs in the lungs, and no tubercle was found in the expectoration nor blood. Opsonic index to tubercle was 1. Two weeks later an irregular yellowish-white patch was found in the right eye near the disc; it was slightly elevated and there was no pigment. In the left eye there were signs of optic neuritis. The irregular pyrexia continued, and signs developed in the lungs. On February 17 tubercle bacilli were first found in the sputum, and death occurred 3 days later. The postmortem showed that the meninges were studded with tubercle, so also were the lungs and most of the abdominal viscera. The sections of the eye showed a typical tuberculous mass situated at the edge of the choroid on the outer side of the optic nerve; this mass involved the nerve and spread backwards through the lamina cribrosa. The anterior part of the globe was normal, except for a congenital anterior synechia.

Meeting of Friday, July 13, 1906.

Priestly Smith, F.R.C.S., President, in the Chair.

Mr. A. R. Brailey read a paper on congenital distichiasis and gave a clinical description of a case, together with the result obtained by making a microscopical examination of a small portion of the lid. The chief point of interest was the fact that the meibomian glands were apparently completely absent and their place was taken by hair follicles. He then gave a description of 4 other cases seen in the clinic of Professor Fuchs in Vienna. These were the only cases seen there during a period of 20 years, and showed how rare this deformity was. He also described a case reported by Kuhnt.

He drew attention to the distinction which should be recognized between trichiasis and distichiasis, and urged the advisability of limiting the latter term to the congenital cases. He gave a list of other cases which had been reported.

Dr. C. H. Usher (Aberdeen) read a note on the choroid at the macular region. He drew attention to the fact that in sections of the eyes of albinos examined by Mr. Nettleship and shown at a meeting of the society in November last that pigment was present in the choroid, but limited to the yellow spot region.

He had since examined 11 normally pigmented eyes and had found (1) a deeper pigmentation of the retinal epithelium at the yellow spot region, and an increased thickness of this layer. (2) A marked increase of the pigmentation of the choroid, and (3) an increase in the thickness of the choroid.

From the above observations it might be expected that if pigment were present at all in an albino's eye it would be found in the macular region.

Dr. Usher also read a paper on a case of unilateral white eyelashes and tufts of hair. The patient was a girl, aged 3 years, whose eyelashes on the left side were quite white, and she also had two tufts of white hair on the left side of her head. There was nothing else abnormal in the mother or child, and the pregnancy was normal in every way. The condition was first noticed about the third day after birth. All the eyelashes on the right side were lightbrown in color, so also was the greater part of the hair of the head. The family history was carefully investigated, and, although there were some albinos in the family, yet no other member seems to have had this peculiar condition.

C. Devereux Marshall, F.R.C.S.

FRENCH OPHTHALMOLOGICAL SOCIETY.

Meeting, held May 7 to 10, 1906.

Rohmer read a paper on arteriosclerosis of the eye. He dealt only with the senile form of arteriosclerosis of the ocular vessels. He denies that all the changes of old age are due to arteriosclerosis, claiming that the senile involution of the tissues is an equally important cause. Lacrimation of the aged, arcus senilis, and a shallow anterior chamber are not due to arteriosclerosis, but the iris and retinal changes, reduction of vision and color sense are due mainly to arteriosclerosis. Rohmer finds a physiologic and a pathologic arteriosclerosis; the former causes no functional disturbances, while the latter causes blocking of blood vessels, hemorrhages and glaucoma. He mentions the work of Streiff and Hertel on retinal blood vessels, showing that the process is a chronic inflammation involving media, adventitia and intima, with new growth of connective tissue and elastic fibers in all degrees up to complete closure of the vessel lumen. In comparison with other organs, the eye is seldom involved. In the eye the central portion is more frequently involved than the peripheral. He considers the aneurysms of the retinal vessels to be more frequent than is generally supposed and of diagnostic value as showing a probable similar condition in the brain. The subjective disturbances are of two kinds, functional and organic. Retinal hemorrhages may, however, occur even in the former class which is characterized by visual disturbances varying from slight loss of vision to blindness. Rohmer is undecided as to the significance of spontaneous retinal hemorrhage as an indication of possible cerebral apoplexy in spite of the close anatomical relation. Conjunctival hemorrhage, however, is of more serious indication.

He believes embolism to be rare in the retinal blood vessels, and does not use the term. On the other hand, he considers thrombosis to be too extreme and uses the term obstruction. He explains the formation of the thrombosis in four ways: (1) Anatomical or mechanical interference with the blood stream as at the entrance to the globe, abnormal course of the vessels, etc.; (2) endarteritis obliterans is the most frequent cause; (3) edema of the vessel wall exaggerating the endarteritis; (4) cramp of the vessel walls. The differential diagnosis between the different forms is at present impossible, except that an amaurosis lasting only a few days is probably due to vessel-cramp. Puncture of the globe is the most serviceable treatment. He holds that lack of support to the vessel walls accounts for the frequency of retinal hemorrhages and believes that unless some definite general toxic or local cause is present arteriosclerosis is responsible. The old idea that the hemorrhages originated chiefly in the veins is untrue. The origin of the extravasate, however, has not yet been fully explained and the prognosis is still uncertain. In regard to the effect upon glaucoma of arteriosclerosis limited to the eye, Rohmer concludes that it causes glaucoma by hindering the free outlet of the eye fluids, changing the composition of the eye fluids, reducing the arterial pressure or increasing it, and, lastly, through edema of the vitreous. He also considers retinitis circinata according to the pathological work of Amman to be secondary to sclerosis of the choroidal vessels.

On May 8, the second day of the meeting, Kalt (Paris) opened a symposium on tuberculosis of the eye. His paper was entitled "Tuberculosis of the Conjunctiva with Later Involvement of the Ciliary Body and General Tuberculosis." He reported the case of an 18-year-old girl, with no family history of tuberculosis. The lids were much swollen and the conjunctiva of the globe infiltrated and grayish yellow. Ulcers were seen on the tarsal conjunctiva. Preauricular and submaxillary glands enlarged and painful. Tubercle bacilli were found. The process became more and more extensive until at the end of three months improvement was noticed and the ulcer healed and the vitreous slowly cleared. The general involvement, however, ended her life with pleurisy and pulmonary tuberculosis. Cauterization, which usually is of service, had no effect whatever on the progress of the ulcer of the globe.

Pechin presented a special form of tuberculosis of the uveal tract. The chief characteristics of the case were abundant, small, round or oval dots on the posterior surface of the cornea, lying chiefly in the periphery. These dots are light yellow in color and look much like drops of oil. They are arranged in rows around the periphery of the cornea. A small group of dots was also observed in the center of the cornea, while the upper portion was comparatively free from them. Serous iritis was an accompanying condition. The diagnosis was tubercular sclerokeratitis.

Aurand (Lyon) reported a case of tuberculosis of the choroid, in which he found a conglomerate tubercle in the choroid of a 22-year-old man, who two months before had suffered from an acute lung infection. The cervical lymph glands were broken down and a chronic irido-choroiditis was present. In four months a spontaneous perforation of the globe took place in the region of the equator, between the superior and external recti. The eye was enucleated, and showed a round, pale-yellow tubercle the size of a hazel nut, located in the upper outer portion of the globe.

Gourfein reported two cases of tubercular infection of the conjunctiva. In the first case a 5-year-old girl showed a deep ulcer of the conjunctiva of the upper lid, which, as was afterward proven by the autopsy, led to a tubercular infection of the cerebrum. The diagnosis of tubercle in the conjunctiva was verified by injections into animals. The second case was a 12-year-old girl with a so-called cockscomb-like tubercular conjunctivitis which had lasted for ten years. Experiments upon animals showed a tendency for them to survive the injections for gradually increasing periods, showing a gradual decrease in the virulence of the bacilli. The conjunctival lesion showed many remissions, the longest of which lasted seventeen months. Gourfein concludes that the ulcerative form of primary conjunctival tuberculosis is the most severe, as the ulcer invades and infects the blood vessels.

L. Dor, Jr. (Lyon): "Tuberculide, Tuberculien and Paratuberculosis of the Eye." Tuberculide is the name given to those tumors of tubercular nature which, however, do not contain either giant cells or bacilli. They are always circumscribed lesions. On the other hand, "tuberculien" are diffuse lesions of the same inflammatory character as a genuine tuberculosis, but containing no giant cells or bacilli. That these lesions are of a tubercular nature is proven by the fact that the serum of the affected patient agglutinates pure cultures of tubercle bacilli; that the serum of the patient injected into a tubercular guinea-pig causes a reaction with rise of temperature; that the patient when tuberculin is injected has a similar reaction. Under the name of paratuberculosis Dor understands those lesions which appear in patients who do not react to tuberculin and whose serum has no power to agglutinate the cultures of tubercle bacilli, but still the lesions occur as a result of a real tubercular infection.

Tuberculide of the eye is represented by the phlyctenular conjunctivitis, episcleritis and tubercle-like choroiditis. That phlyctenules are really tubercles has long been shown by the dermatologists, and Bruns has produced phlyctenules experimentally by intra-arterial injection of dead tubercle bacilli. The group "Tuberculien," or chronic diffuse inflammation brought about by the tubercular toxins, Dor claims as represented in several forms of interstitial and vascular keratitis, scleritis, and so-called rheumatic iritis and iridocyclitis, some hemorrhagia retinitis cases, the most of the thromboses, neuritis of the optic and orbital nerves and the most of the tenonitis cases.

Paratuberculosis of the eye is seen in some cases of strabismus, asthenopia, amblyopia and many cases of migraine. He claims that clinically these patients are tubercular, as they may at one time have had enlarged cervical glands or a tubercular family history. He does not claim that tuberculosis is the only infection which can bring about these eye symptoms, but believes that other diseases may also cause them.

Carpenter and Stephenson (London) presented a report of eighty cases of tuberculosis of the eye, with clinical and histologic reports and demonstrations by means of drawings and colored plates.

Truc (Montpellier) reported a case of old retraction of the elevator palpebrarum in a man 60 years of age. After different fruitless attempts to end the condition he divided the entire muscle at its palpebral insertion and obtained a complete cure. Photographs were shown illustrating the effect of the operation.

Gallemaerts (Brussels) reported a modification of Kuhnt's excision of the tarsus as a cure for entropium. The removal of the tarsus makes the lid more pliable and removes the pressure upon the globe, the lids may be more widely opened, and the pannus is lessened.

Motais (Angers) presented a new advancement suture. He first passes a fine needle, threaded with black suture material, vertically through the sclera for a distance of 1½ mm. at the point chosen for anchoring the tendon. The direction is vertical in the case of the lateral muscles and lateral in the case of the superior or inferior recti. Next he frees the upper three-quarters of the tendon and grasps the tissues at the wound edge and brings them forward to the point where the suture enters the sclera. The suture is then passed through the upper border of the tendon and double-knotted. He then frees the lower border of the tendon and fixes it in the same manner as the upper.

Tattooing of the cornea with different colors was reported by Chevallereau and Polack (Paris). Experiments were first made on animals and later on human corneæ, especially in cases of leucoma of the cornea, and to cover coloboma of the iris. The following colors were used in the experiments: Neapolitan yellow, ochre brown, ochre red, green, natural amber, burnt amber, ultramarine blue and ivory black. There is no irritation of the cornea from these colors, they retain their color and are used to match the different colored irides. Four patients treated in this way were presented.

Tscherning (Paris) demonstrated two instruments for testing color vision.

Augieras (Laval): Anomaly in the shape of the inner canthus after canthoplasty.

Delord (Nimes) reported the case of a young man with alternating strabismus convergens, with good vision in each eye, who could simulate a high degree of amblyopia of one eye. He concealed his alternating strabismus and simulated a unilateral strabismus. Delord considered that the simulation was possible by the high degree of strabismus.

Bourgeois (Reims): Capsulo-muscular advancement by doubling and fixing the muscle. The operation is not new, as a similar procedure is to be found in Haab's atlas der Chirurgie des Auges.

Abadie (Paris): Indications for iridectomy in irido-choroiditis. He operates only as a last resort after all general and local treatment has failed.

Antonelli (Paris), in speaking of so-called "rheumatic" eye diseases, said that the term was too generally applied. The eye diseases which are really caused by an arthritis are uveitis or retinochoroiditis of an infectious or toxic character and are due to metastasis or general intoxication. Rheumatic iritis, keratitis, scleritis, etc., are not generally of rheumatic origin at all.

M. Terson (Toulouse) and A. Terson (Paris) reported an abducens paralysis associated with otitis. The paralysis was believed to be the result of toxins from the ear.

Cantonnel (Paris): Transitory paralysis of elevation of the globe. It was impossible for the patient to turn the eye upward, and there was crossed diplopia present. It was supposed to be due to a hemorrhage, the result of an arteriosclerosis.

H. Villard (Montpellier): Eye disturbances from viewing the sun.

Rollet (Lyon): Three cases of non-ulcerative carcinoma of the lacrimal sac, a new indication for its removal. The removal of the sacs and tumors *in toto* and a pathologic examination first revealed the true nature of the tumors.

Jacqueau (Lyon): Vaccine infection of the conjunctiva. The patient infected himself from pus from a vaccination wound. The lids were tremendously swollen and the conjunctiva ulcerated in places; negative bacteriological examination. Preauricular, submaxillary and cervical lymph glands, swollen and tender. Complete healing in six days, with slight scarring of lid margins.

Fage (Amiens) brought forward a new operation to take the place of exenteration of the globe. He calls it a flap keratectomy, and claims that no prothesis is needed, as the globe retains its shape. The portion of the cornea to be excised is first surrounded by a suture, then the desired portion is excised, and, after removing the lens and, if desired, the iris also, the sutures are tied and a flap of conjunctiva drawn over the wound. Cornea may afterward be tattooed, if necessary.

Vacher (Orleans) and Gras: Two cases of spontaneous luxation of the clear transparent lens into the anterior chamber.

Hondart (Brest): Expulsive hemorrhage and spontaneous rupture of the cornea. The favorable conditions are old age, chronic glaucoma with plus tension, very hypermature cataract, lesions of the zonula. With these conditions present and internal ocular hemorrhage added, the cornea may rupture. Experiments on animals were negative.

Armaignac (Bordeaux): Regarding the necessity for an international decimal vision test.

Lagrange (Bordeaux): Treatment of chronic glaucoma by formation of a filtration scar. The author combines an iridectomy with excision of a small portion of the scleral wound margin subconjunctivally.

Valude (Paris): Regarding the pathogenesis of anterior polar cataract. Two cases were reported showing the two possible origins of the cataract. The first case was one of double blennorrhea neonatorum with corneal infiltration followed by anterior polar cataract. The case illustrating the second factor was one where the cataract was congenital and the cause is supposed to be a disease of intrauterine life or a developmental anomaly frequently of the pupillary membrane.

Onfray (Paris) and Opin (Toulon) reported the histological examination of a case of double anterior polar cataract. The condition was undoubtedly congenital. The opacity in the left lens was elevated and lay between the normal anterior capsule and the anterior epithelium of the lens, the latter being slightly changed. The opacity had a fibrillary structure with a few irregular cells. The other eye showed the same condition, except that the opacity was not elevated. The authors consider that their findings support the theory of Poucet that the capsule is separated from the anterior epithelium.

Golesceano (Paris): The osmosis of the cornea and conjunctiva. No trace of coloring matter or bichlorid of mercury solution dropped into the conjunctival sac or injected beneath the conjunctiva could be found in the aqueous.

Carra (Paris): Argyrol, report of the treatment of conjunctivitis. The author recommends argyrol in the milder forms, but in the more severe cases, as blennorrhea neonatorum, he considers it too uncertain.

Aubineau (Brest): Serum therapy in the accommodation paralysis of diphtheria. The effect of the serum is undoubted and the improvement is rapid. In case of a relapse the dose is to be doubled. Not less than 230 cm. of serum was injected.

Moissonnier (Tours): Periostitis following frontal sinuitis. The most interesting points in this paper were:

1. Diphtheria as a cause of frontal sinuitis.

2. The involvement, by the sequestrum, of almost the entire anterior frontal sinus wall.

3. The reported relapses significant of an osteomyelitis.
4. The rapid healing after the removal of the anterior sinus wall.

C. Fromaget (Bordeaux): Acquired elephantiasis following sinuitis maxillaris. Author reported a case of permanent thickening of the lower lids as a result of recurring erysipelas and sinuitis maxillaris not affected by treatment of the sinus condition.

Chaillous (Nantes): A case of traumatic enophthalmus. Following a blow in the region of the right orbit, the lids were swollen and painful. In fourteen days the acute symptoms passed, but the globe had receded somewhat into the orbit and was rotated downward. A radiograph showed fracture and depression of the outer orbital wall.

Bargy (Elbeuf): Two cases of eye complication in malaria. In the first case retinal hemorrhages were present, with cloudy media following a one year's illness with malaria. In the second case one eye was periodically inflamed in its anterior segment and cleared up under quinin. The condition had been present since youth. The malarial infection showed no febrile symptoms.

Brunetiére: Spontaneous hematoma of the orbit in a woman. No direct history of an exciting cause, as a local injury, could be obtained. In one case the hematoma occurred three days after weaning her child and the other followed suppression of menstruation.

Desbrieres (Limoges) and Bargy (Elbeuf): Report of the statistics of eye injuries.

Gendron and Servel (Lorient): Anesthesia with ethyl chlorid and chloroform in eye operations. Ethyl chlorid is used during the first stages of anesthesia and is followed by chloroform, thus giving a very small amount of chloroform.

Monthus (Paris): Glioma retinæ, with growth into the brain.

Roy (Montreal): A spontaneously developed, movable serous cyst in the anterior chamber. The cyst was translucent and without a pedicle, being freely movable in the aqueous. No irritation was present at any time, although the cyst had been seen first eight years before. Vision was 1/3. It is probable that the slender pedicle which first existed was broken away from its attachment to the iris or ciliary body, leaving the cyst free to float about in the aqueous.

The main event of next year's meeting will be the discussion of vernal catarrh.

Correspondence.

A STUDY OF CONVERGENCE AND ITS DEFECTS.

Nashville, Tenn., Aug. 7, 1906.

Editor of Ophthalmic Record. Dear Sir:—In the last issue of The Record your reporter has misrepresented me in my discussion of Dr. Reber's paper. On page 326, third paragraph from the top, he makes me say in the following clause: "As the relationship between convergence and accommodation was such that if you take away the accommodative power you destroy the convergent power, and do not get reliable results." What I did say was that you disturb the convergent power. In one stage of mydriasis the convergent center is excited, and it is in that stage that some men make a test of the ocular muscles. In no stage of mydriasis can the test of the lateral muscles be made accurately. Please let this correction appear in The Record in the interest of truth.

Yours fraternally, G. C. Savage.

Notes and News.

Privatdocent Dr. Best in Giessen has been made a professor.

In Lund Dozent Dr. Dalen has been given the title of professor.

Privatdocent Dr. Schiek has been made professor in Göttingen.

Dr G. C. Cirincione has been made professor of ophthalmology in Palermo.

In Tomsk Privatdocent Dr. Lobanow was recently made professor of ophthalmology.

Dr. Gallemaerts has succeeded Professor Copez as professor of ophthalmology in Brussels.

The next Bowman lecture, to be given in June, 1907, will be delivered by Professor Sattler, Leipzig.

DR. ERNST BLESSIG has been given the appointment of director of the St. Petersburg Ophthalmic Institute.

IN Görlitz the well-known Meyhöfer Eye Hospital is now in charge of Sanitatsrat Lesshaft and Dr. Zimmermann.

PROFESSOR ADDARIO held a congress in Palermo on the 20th, 21st and 22d of April to organize a systematic method of fighting trachoma.

DR. G. ALBERTOTTI, a professor of the medical faculty of Modena, has been made professor of ophthalmology in Padua, to succeed Gradenigos, deceased.

A NEW University Eye Clinic of Göttingen was dedicated on the 19th of May. Prof. Dr. v. Hippel gave the address, which consisted of a historical sketch of the progress of ophthalmology.

THE Hungarian Ophthalmological Society met in Budapest on the 3d of June. Prof. J. V. Csapodi presided. The subject of the first day was the pathology and treatment of trachoma, and for the second day the cataract operation. The society met in the eye clinic of the Hungarian University of Budapest.

MR. W. ADAMS FROST has decided to retire from his London practice. He has resigned the post of honorary librarian to the Ophthalmological Society and has presented to the society the original water colors made for his well-known atlas, and also a complete set of lantern slides illustrating the fundus oculi.

AT a recent meeting in London in support of the British Ophthalmic Hospital at Jerusalem a resolution recognizing the splendid work which the hospital is doing in the East was offered and unanimously carried and arrangements made to raise the small sum of $7.500 needed annually by the hospital. The hospital has forty-two beds and a very large out-patient department.

THE new officers of the Ophthalmological Society of the United Kingdom were elected on July 13, 1906. They are as follows: President, Priestley Smith; vice-presidents, F. W. Mott, F.R.S., Robert Doyne, John Tweedy, A. Hill Griffith, E. Treacher Collins, G. Sims Woodhead, M.D., W. Adams Frost and George Mackey;

treasurer, J. B. Lawford; librarian, W. T. Holmes-Spicer; council, Sydney Stephenson, J. Herbert Fisher, Rayner D. Batten, J. C. Uhtoff, S. J. Taylor, A. Freeland Fergus, L. Vernon Cargill, J. S. Risien Russell, M.D., A. S. Percival, Surgeon-General Keogh, M.D., Cecil E. Shaw and W. G. Sym; secretaries, F. E. Batten, M.D., and C. Devereaux Marshall.

A CONGRESS of ophthalmologists, organized by Robert Doyne, reader in ophthalmology at Oxford, was held in that city on July 22 and 23. Foreign visitors who were present were Professor Dor, Lyons; Darier and Antonelli, Paris; Pergeus, of Maeyseck, and Patry, of Genoa, and Prof. H. Snellen, of Utrecht. The program for the first day began with the experiments of Professor Gotch on chromatic aberration of the eye. Dr. Henderson Smith followed with a demonstration of the opsonic index. Mr. J. T. Gradon exhibited microscopic specimens of comparative ocular embryology. Mr. S. Mayon presented some drawings of ocular bacteriology, and Mr. P. A. Adams gave demonstrations showing the methods of determining the coagulation time of blood and its importance in ophthalmology. Darier demonstrated his method of using subconjunctival injections. Professor Dor gave his experience in treating exophthalmic goiter by the thymus gland. Mr. Nettleship's paper was on family diseases of the eye. The rest of the meeting was taken up with visits to the Oxford Eye Hospital and the various colleges and points of interest about historic Oxford. The social features were particularly appreciated, and it is expected that the meeting will become a regular institution.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, SEPTEMBER, 1906. VOL. XV. No. 9, NEW SERIES.

Original Articles.

ON A CASE OF SEPTIC INFECTION FOLLOWING OPHTHALMIA NEONATORUM.

BY SYDNEY STEPHENSON, M.B.. C.M.
Ophthalmic Surgeon to the Kensington General Hospital, the Evelina Hospital,
the Northeastern Hospital for Children and Queen Charlotte's
Hospital; Editor of *The Ophthalmoscope.*

LONDON, ENG.

The account given by Dr. E. W. Stevens in the columns of THE OPHTHALMIC RECORD (November, 1905) of a case of septicemia due to ophthalmia neonatorum reminds me in some respects of one of my own, of which brief details follow:

On Oct. 10, 1904, I saw a baby, aged 7 days, whose friends told me that the baby was born October 3 at term, without instruments, after a labor lasting sixteen hours, and that the presentation was natural. The mother, who was a primipara, was stated "to have had no waters." The baby was born at 4 o'clock p. m., and at midnight—i. e., six hours later—the lids of both eyes were noticed "to be swollen like bladders" and to have water running from between them. The baby's eyes had been under active treatment elsewhere.

Present State.—Upon examination the baby's lids were not much swollen and could be everted without any particular difficulty. They were stained here and there with the preparation of silver that had been used before I had the opportunity of seeing the child. The palpebral conjunctiva, especially that of the upper lids, also showed abundant evidences of active treatment. Although the corneæ were so milky as to preclude any view of the deeper parts, yet no actual ulceration was present.

Bacteriology.—Despite repeated examination of cover-glass preparations of the discharge from the eyes, no gonococci (or, for that matter, any other kind of cocci) could be found. As there seemed to be nothing out of the common in the case, cultures were not made.

Progress and Treatment. — The baby was treated as an out-patient with argyrol, 25 per cent., and with permanganate of potash lotion, 1/5,000. On October 28, eighteen days after I first saw the baby, both corneæ had perforated and the iris had prolapsed in each eye. On November 4 a swelling of the right wrist and of the left little finger was noticed. On the following day the baby was admitted as an in-patient at the Evelina Hospital, London, under the more immediate care of my surgical colleague, Mr. C. H. Fagge. The condition on reception was as under: profuse yellow discharge from both eyes, which were affected with panophthalmitis. Temperature, 95.6 F. Metacarpal bone of the left little finger swollen and fluctuation can be made out. Two other fluctuating swellings were present: (1) at lower end of left ulna, and (2) at inner side of sole of left foot. The heart and lungs and pleura showed nothing abnormal. A provisional diagnosis of pyemia was made. On the following day, November 6, the temperature was 96 F. and 96.6 F. On November 7, under chloroform, the various swellings were opened. That on the foot proved to be a subcutaneous abscess. The others involved respectively the lower end of one ulna and the metacarpal bone of the little finger, the bone in both the situations named being bare. The wounds were packed with gauze and dressed in the usual way. Temperature, 96.6 F. and (after operation) 95.6 F. The blood was not examined bacteriologically. The baby was discharged on Nov. 20, 1904, that is to say, after a stay in the hospital of fifteen days. It is important to note that during the entire time the temperature rose above normal once only, namely, on November 18, when it stood at 98.6° F. As a rule, it fluctuated between 96° F. and 98° F.

Dr. A. N. Leathem, pathologist to the hospital, who examined the pus from the abscesses, reported as follows: "Films from the pus show a few diplococci, but these can not be identified as gonococci. Plated on culture media suitable for the growth of gonococci, no growth of these or of any other organisms was obtained."

Subsequent History.—In April, 1905, the left eye was enucleated, since it had become staphylomatous, and it appeared to cause the baby some pain. On June 27, 1905, the following note was made: Right eye, partial staphyloma. The child is well nourished, and stated to be thriving on the bottle. She has "snuffled" for some weeks, and the bridge of her nose is slightly depressed. An eruption is present upon what has been described as the "diaper area," i. e., the buttocks and adjacent parts covered by a baby's napkin.

Near the right anterior superior iliac spine is a reddened area made up of several papules lying on a reddened space. My note stated that but for the excellent state of this child's nutrition the diagnosis of congenital syphilis might be made.

Remarks.—This was clearly an instance of antepartum ophthalmia, a condition of which Dr. Rosa Ford and myself have recently (*Ophthalmoscope*, April, 1906) published seventeen cases. In that communication we have endeavored to show that this form of ophthalmia is not so uncommon as has been generally assumed. In view of the subsequent developments, it is unfortunate that gonococci could not be demonstrated in the eye discharges. The multiple abscesses, however, could scarcely be explained except on the hypothesis of a coincident septicemia, although, I suppose, syphilitic epiphysitis can not be altogether excluded. In Dr. Stevens' interesting case gonococci were found in (1) the maternal genital secretions, (2) the discharge from the baby's eyes, and (3) the pus from an inflamed knee-joint. In the present case gonococci could be demonstrated neither in discharge from the eyes nor in pus from the joints. Dr. Stevens' case was clearly one of gonorrheal septicemia, whereas the one now recorded is more likely to have been due to ordinary pyococci. In this connection it may be merely said that any micro-organism capable of producing inflammatory products may under certain circumstances give rise to septic infection. The temperature, which attained 98.6° once only during the baby's stay in hospital, tells, of course, against the theory of septic infection. Recovery tells neither one way nor the other. It may be fairly concluded, I think, that mine was a case of mild septic infection, due to absorption of pyogenic organisms and their toxins from the inflamed eyes.

33 Welbeck Street, London, W.

THE FERGUS OPERATION FOR PTOSIS.

By H. W. Woodruff, M.D.

Professor of Ophthalmology of the Chicago Eye, Ear, Nose and Throat College;
Surgeon at the Illinois Charitable Eye and Ear Infirmary.

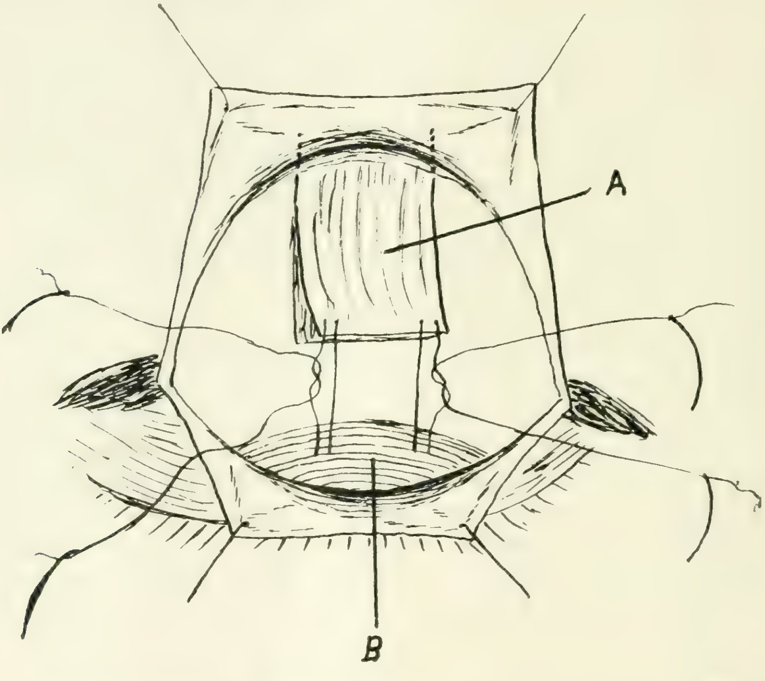
JOLIET, ILL.

(Illustrated.)

The Ophthalmic Record of May, 1906, contains a review of an article by Bruns, of New Orleans, on the operation of Motais for ptosis. At the close of the article the reviewer says: "The operation has much to commend it, and it appears to be easier to perform than any other operation, except that of excising a fold of skin, which is notoriously inadequate."

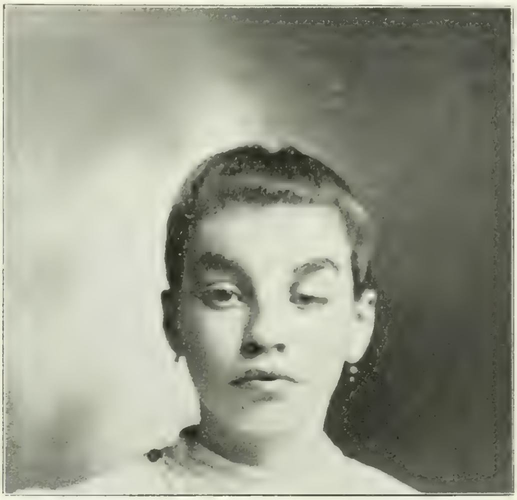
I wish to call attention to an operation for ptosis known as the Fergus operation and described by him in the *British Medical Journal* of March 30, 1901. I have performed this operation three times and the photographs show the result which may be obtained by this operation. This case was shown at a meeting of the Chicago Ophthalmological Society in October, 1904. The second photograph was taken two months after the operation.

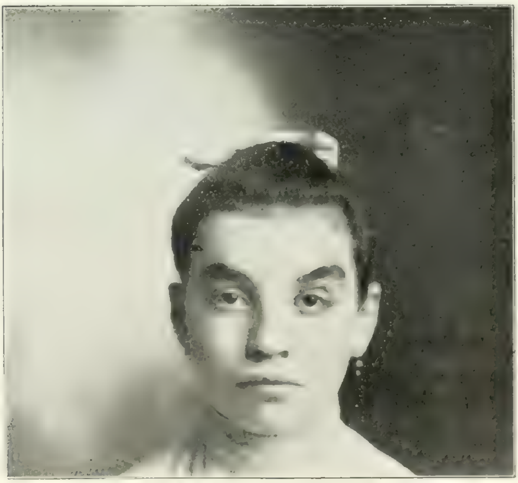
After reading the review above noted, it became evident to the writer that the Fergus operation had not received the attention it deserves. Although it may be true that the Motais operation "has much to commend it," still it can not be said to be "easy to perform" compared with the operation described below.



The operation is performed as follows: A horizontal, slightly curved incision is made through the skin of the eyebrow, through its whole extent. The skin is then dissected up over the occipito-frontalis for nearly two inches. The lower flap is dissected downward nearly to the lid margin. There should be but the one skin incision in making these dissections. Next a tongue-shaped flap is dissected out of the occipito-frontalis above (A), about three-fourths of an inch wide and two inches long. This flap, which is attached to the rest of the muscle only at its upper part, is drawn downward and fastened to the exposed tarsus (B) with catgut sutures. The skin incision is then closed with silk sutures and a dressing applied.

The advantages of this operation are so evident as scarcely to require mentioning:





1. There are no visible scars, the only external incision being in the brow.

2. A muscle which already has some power to raise the lid is simply made to do more—really an advancement operation.

3. It is easy of performance and is efficient.

A CASE OF HYPERMETROPIA OF 21 DIOPTERS SIMULATING MYOPIA.

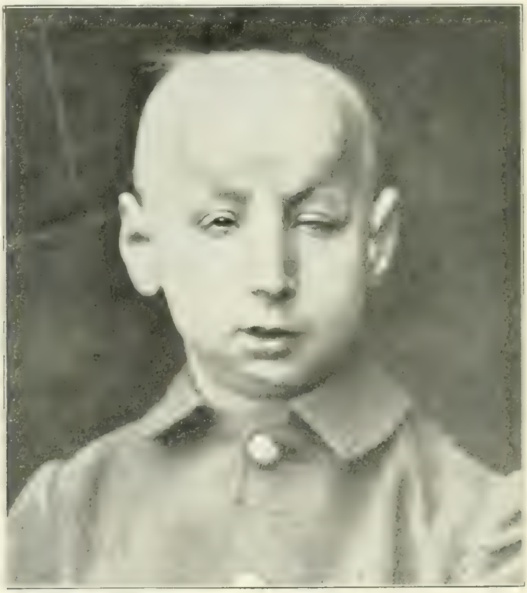
EDWARD STIEREN, M.D.

PITTSBURG, PA.

(Illustrated.)

John W., age 15, an inmate of the Institute for Feeble-minded at Polk, Pa., was examined by me at the request of Dr. C. H. Henninger, assistant superintendent of the institution.

The patient, a middle-grade imbecile, attracts one's attention—even among a number of inmates with more or less pronounced physical stigmata—by his odd appearance, due to an almost entirely bald head, an enormously developed frontal eminence, huge ears and a constant narrowing of the palpebral fissure of one eye only.



His supraorbital ridges are only partially developed, extending but half-way across the orbits. The outer rim of each orbit recedes sharply and, the orbits being shallow, the eyeballs have the appearance of being unduly prominent. The right palpebral fissure measures eleven millimeters from canthus to canthus, the left twenty-four millimeters.

The right eye is microphthalmic and possesses apparently no light perception. The cornea measures but six millimeters in diameter; the anterior chamber is deep and the pupil irresponsive to atropin. An indistinct view of the fundus can be obtained showing extensive choroidal and retinal degeneration.

The left cornea measures ten millimeters at its base. The anterior chamber is shallow and the pupil dilates irregularly under atropin, due to posterior synechiæ at the temporal side. The ophthalmoscope shows twenty-one diopters of hypermetropia and reveals numerous small areas of choroidal degeneration, none, fortunately, in the macular region. V. = 2/200, with + 21 D. Sph. V. = 4/50. The patient can read all ordinary type at from 3 to 5 inches from his eye with this correction, but is also able to read the same type at the same distance without glasses.

The accompanying photograph shows the characteristic narrowing of the palpebral fissure of the myope in this highly hyperopic patient. The blind right eye remains open in a natural state.

ANOTHER SUCCESSFUL MAGNET OPERATION, BUT WITH AN UNUSUAL TERMINATION.*

H. B. YOUNG, M.D.

BURLINGTON, IOWA.

(Illustrated.)

This case is reported because it presents a question which, so far as I am aware, has not been raised in this branch of ophthalmic surgery. It is not, in my opinion, a *"propter hoc"* question, but I had to meet it, and it may be that others will have to meet it.

A. J., 48 years old, a man of nervous temperament, rather undersized, but fairly nourished. On the morning of Jan. 16, 1906, while driving a wedge in an engine frame, he was struck in right eye by a scale from the wedge. I saw him an hour later. There was a perforating linear wound of 6 mm. wholly within and almost horizontally across the lower part of the cornea, from the nasal angle of which a tag of iris protruded (Fig. 1). The lower part of the anterior chamber was so filled with blood that most painstaking inspection revealed nothing. Upon clearing the nasal angle of the wound, snipping off the iris tag, I learned that the wound shelved sharply downward. The patient was sure that nothing was in the eye, but, as I had suspicions to the contrary, I had immediate recourse to the hand magnet, with the result that pain was felt as soon as the eye came within the field of the magnet. This pain was associated with a sense of dragging when the magnet was in contact with the cornea, but no foreign body presented. I then switched on the giant magnet, the wound bulged with corresponding depression in the ciliary region, and the scale which I here show you came into view. It measures 6x5x1.5 mm. in its greatest dimensions, an irregular parallelogram in shape.

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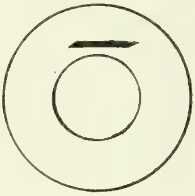
* Read before the Chicago Ophthalmological Society, May 8, 1906.

After three or four unsuccessful attempts to deliver through the wound of entrance, the wound was enlarged 3 mm. with scissors, the cut being at an angle of 60°, and then delivery was comparatively easy. That part of the iris caught and dragged out by the serrated edges of the scale was cut off, the angles of the wound cleared with probe, atropin instilled, cataract dressing applied and patient sent to bed. V. = Qual. L. P.

Two days later, there having been no discomfort, the first dressing was made. Wound smoothly closed, remains of clot in anterior chamber, pupil moderately dilated and some chemosis in lower fornix. V. = Quant. L. P. Gave daily dressings and atropin instillations, some dionin also, with sod. salicyl. internally as a prophylactic. In two weeks the eye was considerably whitened out and V. = Qual. L. P. But the pupil was not well dilated, the iris was off color, and the pupillary area cloudy, due alike, it seemed to me, to clouds on and back of the lens. At the expiration of a month the eye was white and quiet. V. = Qual. P. L. doubtful. Tension distinctly minus without tenderness. Patient was again warned of the possibility of further trouble, given quite minute instruction covering the course he must follow, and dismissed from regular attendance. One week later, just five weeks to a day after his injury, he became wildly excited, first in a general way along religious lines to which he was addicted, and then he unhappily recalled the scriptural injunction: "If your right eye offend you, pluck it out, etc.," which, he concluded, was meant for him in particular, and would have obeyed had he not been forcibly prevented. Bromids and chloral given by the family physician brought temporary rest, but by the next day he was maniacal and violent. He was then taken to the hospital, where I saw him the day following, incoherent



and oblivious of everything except necessary handling, which he resisted strenuously. Emaciation was already well marked, as was shrinkage of the injured eye. He died on the sixth day of his frenzy without having regained consciousness, death apparently due to exhaustion, for neither pulse, temperature nor any other symptom was characteristic of structural lesion.

Was the eye injury and operation the real cause of death? I gave a negative opinion, because the diagnosis of meningitis had been rejected by the physicians who saw him and the mania which has been recorded as following operations upon the eye has been an immediate and not a remote condition.

This was not satisfactory to the patient's friends, who, while admitting a religious fervor manifested for some months by frequent and long prayers, held that an accident and sick-benefit policy made it necessary that the exact liability be determined. An autopsy was, therefore, ordered and made. The cavities of the skull, thorax and abdomen were all opened and explored, but nothing of note macroscopically was found in either. The eye, with section of the nerve, was removed for microscopic examination and given to Dr. Pusey. His findings will complete this report.

EPITHELIOMA OF THE ORBIT.

RICHARD H. JOHNSTON, M.D.

BALTIMORE, MD.

LaGrange says that carcinoma of the orbit is the result of an infiltration in the deep parts of a conjunctival epithelioma or develops primarily in the epithelium of the lachrymal gland. Both varieties are very rare. Only a small number of tumors of this kind in which the histologic examination was positive have been recorded. The following case which occurred with epithelioma of the antrum was seen by the writer: H. S., 65 years old, during the summer of 1905, complained of redness and lachrymation of the left eye. His family and personal histories were good. He had always enjoyed good health and at the time of the first consultation weighed 180 pounds. The first week in June he noticed that the eye became irritated in reading by artificial light. At his first visit—the 8th of July—the conjunctiva of the left eye was reddened, while between the eyeball and the margin of the orbit a small, hard, flat mass could be felt. The patient refused an immediate operation for the removal of the growth, so a placebo was given, with instructions to report any increase in size of the tumor.

Two weeks later, at his second visit, the swelling extended further out toward the external angle. Realizing for the first time that the disease might be serious, the patient consented to operation. On the 8th of August, under chloroform anesthesia, an incision was made along the lower orbital margin. The tumor was easily exposed and appeared as a hard, flat mass, apparently attached to the floor of the orbit. After dissecting it up, it was found to extend to the inner angle of the orbit, to which it was attached for nearly an inch. The mass seemed to have taken its origin from this point, since it could only be removed with cutting forceps. From the fact that the tumor was hard and encapsulated it was thought to be a sarcoma. The patient made a good recovery from the operation. Two weeks later the anterior wall of the antrum began to swell and the skin became red. On the 12th of September the upper jaw, the eyeball and the contents of the orbit were removed. Death occurred ten days later. Sections from the growth were stained with hematoxylin and eosin. These showed a typical and very malignant epithelioma, as did sections from the antrum. Careful examination of the orbital wound showed no opening into the antrum. There was a small opening into the nose from the operation. The connection between the two growths could not be found. The tumor in the antrum had perforated the anterior and posterior bony walls, but no growth upward could be seen.

919 North Charles Street.

DISLOCATION OF LACHRYMAL GLAND.

T. W. Crowder, M.D.

SHERMAN, TEXAS.

The report of the following case is of interest mainly on account of its rarity. On November 21, 1905, A. R., female, age 13, while playing basket ball, had a collision with one of her playmates in which she received a severe blow over her right eye. In a few moments quite a lump in upper lid of right eye was noticed, which frightened her very much, and she came immediately to my office. Upon examination I found a hard lump, about the size of a small almond, presenting under the integument just below the eyebrow, and recognized it to be the lachrymal gland that had been dislocated from its bed in the roof of the orbit. By firm pressure with my fingers I succeeded in replacing the gland, but as soon as the pressure was released it would again begin to present. I applied a compress bandage for four or five days and then left it off, with instructions for the patient to remain perfectly quiet for several days. Within half an hour after the compress was removed she complained of double vision, and in about three hours her mother telephoned me that the lump was returning to the lid. I instructed her mother to apply a compress over the swelling and tie a handkerchief tightly around it until I could see her. When I saw her, in about two hours from that time, the swelling had again disappeared, so I reapplied the compress bandage and allowed it to remain for about two weeks from the date of the injury.

It is now nearly ten months since the injury, and as there has not been any reappearance of the lump the gland must be firmly fixed in its original bed.

RECENT ADVANCES IN OPHTHALMOLOGIC THERAPEUTICS.*

WILBUR B. MARPLE, M.D.
Ophthalmic Surgeon, N. Y. Eye and Ear Infirmary, etc.
NEW YORK.

LOCAL ANESTHETICS.

Within the last two years two new local anesthetics have been introduced as rivals of cocain, viz., stovain and alypin. The latter (a white powder, easily soluble in water), when instilled into the eye in 2 per cent. solutions, produces local anesthesia in about a minute, which is quite efficient and lasts one or two minutes. It does not dilate the pupil, but causes some vaso-motor dilatation. By some the smarting is said to be less, by others more than that produced by cocaine. It can be readily sterilized by boiling, and Sydney Stephenson has injected a few drops for the removal of tarsal tumors. One bad result has been reported from the use of alypin (*Ophthalmoscope*, January, 1906, p. 55), in which the solution was instilled three times during seven or eight minutes, at the end of which time the patient had a brief, slight convulsion followed by unconsciousness for a few seconds. The patient became cold and white and the pulse feeble and slow (40). Under active stimulating treatment he slowly recovered in a couple of hours. The symtoms were attributed to the absorption of the drug.

Stovain, 4 per cent. solution, causes considerable smarting when instilled, and produces a local anesthesia in two to three minutes.

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* Read by invitation before the American Therapeutic Society, at its meeting in New York City, May 4, 1906, in a Symposium on the Recent Advances in Therapeutics.

which lasts eight to ten minutes. There is very much conjunctival injection (a distinct disadvantage in operations) and also mydriasis lasting three to four hours. It has been used to inject subconjunctivally, but must never be thus employed when combined with adrenalin, as local gangrene of the skin may follow.

Personally, I have found none of the newer local anesthetics to offer any practical advantage over cocaine, which I still use in most cases, alone or with holocain.

Silver Salts.—In recent years there have been numerous preparations of silver salts, introduced to take the place of nitrate of silver, among them protargol, argonin and argyrol. The latter has now been used several years, and by a great many ophthalmologists is still preferred to the nitrate in conjunctival diseases. A recent number of the *Ophthalmoscope* (January, 1906), contains an enthusiastic article on "Argyrol in Ophthalmic Practice," by Henshelwood, of Glasgow. At a recent meeting (Jan. 16, 1906) of the Section on Ophthalmology of the College of Physicians and Surgeons, of Philadelphia, Dr. G. E. de Schweinitz concluded some remarks on the use of the newer silver salts, by saying that he was "satisfied that neither protargol nor argyrol represents in any sense a satisfactory substitute for nitrate of silver in gonorrheal affections of the conjunctiva." A considerable experience in the use of these silver salts has led the writer to precisely the same conclusions as those of Dr. de Schweinitz and he has come more and more to rely upon nitrate of silver in these cases.

Serum Therapy.—Paul (*Klin. Monatsbl. f. Ahk.*, 1905, II, p. 352), from Uhthoff's clinic, in Breslau, reports further experience with the use of Römer's pneumococcus serum in *ulcus corneæ serpens,* using much larger doses than in his previous experiments. On account of the great cost of the serum he was careful to select only cases in which the size and progress of the ulcer gave little hope of a cure by the usual other methods of treatment. If the process still continued to advance after two or three days of the usual antiseptic treatment, the serum was employed. The effect of the latter in many cases was very marked. The process seemed to come to a standstill, beginning again if the serum was discontinued, again ceasing when the injections were resumed. The cure, however, was quite a protracted one. He injected from 10 to 14 c.cm. of the serum every day, or every other day to every four or five days, as necessity required. Of fifteen cases there were six cures, two partial cures, and seven failures. In conclusion Paul emphasizes the fact that many cases of serpent ulcer of the cornea have a considerable tendency to recovery without any very radical treatment. Much caution is necessary, therefore, not to attribute the results secured with the serum therapy, in these mild cases, entirely to the latter.

My friend, Prof. Carl Hess, of Würzburg, in whose clinic Römer's experiments have been carried on, kindly wrote me recently in reference to serum therapy, and from his letter I quote briefly as follows:

Experiments with Römer's pneumococcus-serum in ulcus serpens have been made on rather a large scale in my clinic under Römer's and my own direction. In no case have we observed any apparent injury, general or local, from the use of the serum. In small recent ulcers we have observed, in the great majority of cases (I should say about 75 to 85 per cent.), a very favorable effect; often indeed, surprising, in that the ulcer became quickly clean and healed over, leaving behind relatively very faint scars. In further advanced ulcers, involving more than one-third to one-half of the cornea, and which have lasted longer before coming under treatment, the effect of the serum in a considerable number of cases was quite unmistakable, but less reliable and constant than in the recent and smaller ulcers. In more extensive suppuration of the cornea the results of serum therapy are less certain than in the fresh cases: in the latter, the treatment is a distinct and valuable advance. In the present state of the question, the passive immunization (subcutaneous injection of the serum) seems to be the most appropriate method of application: investigations are still making concerning the efficiency of the combined (active and passive) immunization. I am convinced that the prophylactic immunization, as experimentally employed now by Römer in suspicious fresh corneal injuries, promises very good results when carried out in the proper manner.

Radium.—Dr. Abbe treated a patient of Dr. P. A. Callan's, who had a round-celled sarcoma involving two-thirds of the right lower eyelid. Under the influence of radium the tumor entirely disappeared, and there was left a sharp and normal edge to the eyelid after the retrograde disappearance of the tumor. The writer saw this patient before and after treatment, and can testify as to the remarkable cure.

Kirchner claims to have gotten good results from radium in epithelioma of the eyelid.

Darier also reports a case of superficial epithelioma, cured in two months by radium, "except two suspicious points which remained under treatment."

Cohn, of Breslau, brought the end of a fine glass tube containing a minute quantity of radium into approximation with each of the granulations in trachoma and found that these disappeared rapidly and without pain to an extent that, with ordinary means, would have required months of treatment. He had treated thus seven cases.

Selenevsky applied the tube over the area treated and slowly moved it about without touching the surface; time of exposure, five to ten minutes. The results were astonishing; five of seven eyes were entirely cured; the other two were in a fair way of becoming so. The number of sittings varied from eight to fourteen, and the author considers that the treatment when properly conducted, is perfectly harmless.

Harman, however, treated two trachoma patients with radium, with no benefit, though in one 37, and in the other 139 applications were made.

Roentgen Ray.—Vassioutinsky employed the x-ray in cases of trachoma, and found that pannus regressed well, but granulations disappeared but slowly.

Stargardt concludes that while the Roentgen rays may have a limited action in these cases the ordinary therapeutical and operative measures are more certain.

Dr. George S. Dixon has had quite an extensive experience at the New York Eye and Ear Infirmary in the use of the x-ray in the treatment of malignant growths, and his conclusions he has kindly given me as follows:

The cases of malignant growth which I have treated at the New York Eye and Ear Infirmary with the x-ray have included epithelioma of the lid, ocular conjunctiva, furuncle of the ear, sarcoma of the lid and orbit, and lupus of the lid, inner canthus and nose.

The results of my experience in this line have been much the same as those recently published by other workers, and warrant the general statement that the x-ray has failed to make good the predictions of its more sanguine advocates. A middle ground can, however, be taken by ophthalmologists. We may reasonably expect good results after the x-ray treatment of superficial flat epithelioma about the lids and bulbar conjunctiva. If, however, the growth involves the deeper layers of the skin and is nodular in form, or has invaded the sclera, application of the x-ray is almost useless. Small areas of lupus vulgaris respond quite readily. As to the sarcomata it is a waste of valuable time to treat these growths with the x-ray unless they are inoperable, and even then the best that may be expected is a slight temporary reduction in the size of the growth and amelioration of the pain.

Of the greatest service to the ophthalmologist, however, is the x-ray in the localization of foreign bodies in the globe. Indeed, when one is confronted with such a case now, the first thing we want is an accurate skiagraph. Dr. George S. Dixon, of this city, has done a great deal of this work, and his results have become extraordinarily accurate during the last year. I pass around a chart in which he localized a birdshot in a patient of mine, as having passed through the globe into the orbit. This patient has now a vision of 20/20, as the chart shows. Thirteen other shot were localized. On the opposite side will be found skiagraphs localizing various foreign bodies, as iron, glass, steel, copper, etc., so that there can be no doubt that to the ophthalmologist the x-ray is more useful to localize foreign bodies than as a therapeutic agent.

While exophthalmic goiter may not be wholly of ophthalmological interest, the writer can not refrain, in conclusion, from alluding to the remarkable work of Dr. John Rogers, of this city, in the treatment of exophthalmic goiter by a specific serum. While only ten cases were reported, the results are so convincing, and have been so well verified by the observations of Dr. Wm. Gilman Thompson, that further reports are awaited by all with the greatest interest. It looks very much as though we had at last obtained a cure for this hitherto incurable condition.

46 West Fifty-third Street.

PSEUDO-OPTIC NEURITIS.

THOMAS FAITH, M.D.

CHICAGO, ILL.

(Illustrated.)

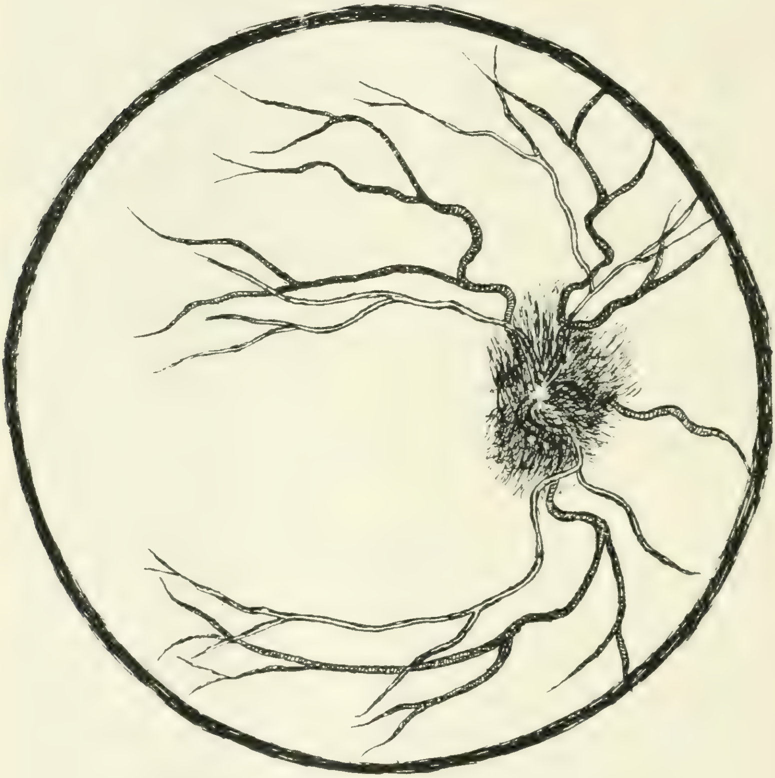
The comparative infrequency of well-marked cases of pseudoneuritis, and the scarcity of literature on the subject, have prompted the writer to publish the following case, together with some opinions and remarks upon the condition in general.

T. W., a well-nourished female, aged 19, came first in March, 1903. She gave the following history:

In 1898 she began to wear glasses on account of short sight. In 1899 she began to have periodical attacks of headache, affecting first one side and then the other, and always preceded by distinct scintillating scotoma. These headaches have become gradually more frequent and severe, until at the present time they occur two or three times a week, and last from a few hours to a day.

The patient was nervous and hysterical, and complained of severe eye pains, particularly at the menstrual period, at which time she suffered severely.

In external appearance the eyes were normal; pupils reacted normally to light and accommodation. She was wearing —3.00 D. Sph. both eyes, and with this correction had R. V. = 6/7.5; L. V. = 6/9. She had good accommodation, and the external muscles were balanced except for 2° of exophoria at fourteen inches. Ophthalmoscopic examination showed the disk margins to be obscured completely above, below and to the nasal side; and somewhat blurred to the temporal side. The veins were very tortuous, and were obscured in places as they emerged from the disk. The papilla was elevated above the surrounding fundus 4 or 5 D. The retina around the papilla was markedly striated for almost a disk diameter in every direction, but less so to the temporal side. There was no sign of a physiological excavation. Both eyes were practically identical when viewed by the direct method. The fields were normal, except for a slight reversal for colors in the horizon-



R.E. Direct method
T. W.

tal meridian, and central vision could be brought to 6/5 with R. E. —3.25 D. S.; L. E. —3.50 D. S., under atropine.

The urinalysis was negative, except for polyuria. The blood count was normal. There was no history or evidence of lues.

The patient was kept under close observation for more than a year. She was given K. I. to saturation, inunctions of Ung. Hydrarg. to the point of intolerance, pilocarpine, sweats, and her menstrual derangement was corrected.

There has been absolutely no change in the appearance of the fundi, in the fields, or the central vision, up to the time the patient was last seen, on June 28, 1906, three years and three months from the date of first examination. Her subjective eye symptoms, however, have abated, and her migraine is somewhat improved. The menstrual function is normal.

Pick,[1] who has written on this subject, dwells upon the difficulty which occasionally arises of distinguishing between this condition and a true neuritis, and mentions two conditions which are liable to confuse the observer. These are, first, pseudo-neuritis in ametropia, and, second, edema of the optic disk. The first of these conditions, he says, occurs in eyes that suffer from hypermetropia, and hypermetropic astigmatism; and may be combined with tortuosity of the veins; the whole making a picture to be differentiated from true neuritis only with difficulty.

The following points he thinks should be borne in mind in differentiating. The transparency of the tissue, the normal reflex from the vessels, the permanence of the tortuosity, and the refraction. He also calls attention to the fact that this pseudo-neuritis may be associated with a hyperemia, due to some fever, particularly the infectious ones; and these he considers the most difficult cases. In the second class, edema of the disk, Pick speaks of a swelling of the disk of 1 to 3 D., but in which the tissues retain their transparency unimpaired, and which is usually accompanied by edema in other parts of the body, the condition occurring mainly in the primary and secondary anemias.

Sidney Stephenson[2] describes the anomaly as a congenital condition, neither advancing nor receding, which causes no disturbance of vision, though it is often associated with a degree of congenital amblyopia, and in which the fields show no change; no actual elevation of the disk can be demonstrated with the ophthalmoscope, and there is an absence of hemorrhage or white spots in the neighboring retina.

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[1] Zeitsch. f. Augenheilk., March, 1904.

[2] Reports of Society for the Study of Diseases of Children, vol. iii, p. 342, 1903.

Talmey[3] also calls attention to the existence of amblyopia in these cases, and, like Stephenson, says the disk is not elevated above the surrounding fundus.

I would take exception to the statement that no actual elevation of the disk can be demonstrated with the opthalmoscope, as the above case clearly showed the disk to be elevated 4 or 5 D. above the surrounding fundus; and Beard[4] has reported a case in which the difference in refraction between the crest of the papilla and the surrounding fundus amounted to 7 or 8 D. The case was kept under observation for seven years before the report was made. (It may be well to remark here that this case has a considerable degree of amblyopia.)

To complete the description, then, I would add: The disk margins are blurred or altogether hidden from view, and the vessels which may be tortuous are frequently partially obscured as they leave the disk. The physiological excavation is absent, and the papilla may be even markedly elevated above the surrounding fundus.

Stephenson very justly rejects the term hypermetropic disk, which has so long been applied to the lesser degrees of this condition, for three reasons. First, because the condition, he thinks, is not more frequent and pronounced in high than in low grades of hypermetropia; second, because it undergoes no improvement when the error is corrected; and, third, because it is relatively as common in myopia as in hypermetropia. He considers it to be a non-differentiation of the optic disk, on account of the frequent existence of shreds of connective tissue, and the tortuous state of the retinal vessels. He found a condition of pseudo-neuritis of some degree in 22.80 per cent. of 114 children recently examined with the ophthalmoscope.

There are probably few observers who have encountered the condition as often as Stephenson records, though it will readily be conceded that the peculiarity should always be kept in mind when the nerve head appears to be inflamed, and no hemorrhage or exudate can be seen in the surrounding retina.

It appears, then, from a review of the opinions above quoted, and a study of the above case and that of Beard, that the diagnosis may be settled on the following points: First, the absence of changes in the retina surrounding the papilla, together with normal visual fields (and particularly with reference to the size of the normal blind spot): second, the absence of variations in the appearance of the disk or retinal vessels from time to time ; and, third, the absence of decreasing changes in the central visual acuity from time to time. (Though it must be remembered that vision may be below normal on account of an existing congenital amblyopia.)

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[3] New York Med. Jour., vol. lxxxiii, p. 142, 1906.

[4] Ophthalmic Record, June, 1901.

In short, time and repeated examinations are important factors in confirming the diagnosis in difficult cases.

THE NEW INTEGRAL OR FUSED BIFOCAL LENSES.

H. V. Würdemann, M.D.

MILWAUKEE, WIS.

During a sojourn in New York City in June of this year, I visited the establishment of Meyrowitz, and was shown by him the new fused bifocal lens and the methods of its making.

This is a two-piece bifocal glass, the major lens correcting the distance refraction being made of crown glass, and the minor lens or scale, of flint, the presbyopic correction. The latter is firmly sized to the larger lens by a flux and electric heat, the exact methods of which have not yet been divulged by the inventors and patentees, except to the members of the Kryptok Association.

The advantages of a bifocal lens, in which the dividing line between the flint-glass scale and the major lens does not show, are evident by the popularity of the three-piece cemented Kryptok bifocal—and the advantage of a bifocal lens without cement is even more apparent. I understand that the cost of the new fused bifocal is the same as that of the Kryptok cemented lens. The following letter received from Mr. Almer Coe of Chicago is self-explanatory:

"Replying to your letter of August 16 regarding the new Integral or Fused Bifocal Lenses, the facts are about as follows:

"Going back a little to the time when the Borsch three-piece bifocal (now known as the Kryptok Bifocal) first became a commercial possibility, it was soon found that more or less of the same old cement trouble still obtained in the Kryptok lens. I believe from that date quite a few opticians began looking for a better method of joining the parts. This incentive for improvement particularly applied to the licensees and makers of the Kryptok lens.

"The writer was first to make Kryptoks outside of the few previously made by the inventor, Mr. Borsch, of Philadelphia; and while we, with other opticians at the outset, believed that the perfect bifocal had been produced, very soon encountered the objections noted above, that of loosening of the cement.

"In some instances this cement deterioration would occur apparently without cause, and in a great many instances these lenses have been worn for some years without the least possible sign of defect in the cement. However, the troublesome cement was the prompting factor toward the search for an improvement. It may be said that from the time Kryptoks were first made, a new method of attaching the parts has been sought, and mostly with the thought of fusing or melting together.

"The new style, or fused Kryptoks, have now been in use to some extent about three years. To be sure, those put out three years ago had not reached the desired state of perfection which they now have assumed. Most all the members of the Kryptok Association are making their Kryptoks by this new method. This new method has been developed entirely by the makers of the old Kryptoks, and all the credit is not claimed by any particular member.

"Other parties outside of the Kryptok Bifocal Association have also applied for a patent on the new fused lenses, and on account of this fact the processes of making these lenses are kept, as far as possible, a secret, so that I can not inform you as to the method employed in fusing. I will say, however, that the fused Kryptoks are now made in all the regular forms of lenses—spherical, compound, toric, etc.

"You perhaps know that in the fused Kryptoks but two pieces of glass are used. The cover-glass or third piece, as used in the old-style Kryptoks, is unnecessary in the fused, as the latter consists only of the base lens with the reading disk of flint glass fused into it."

PAPILLOMA OF THE PLICA SEMILUNARIS.

By Richard H. Johnston, M.D.

BALTIMORE, MD.

In November, 1905, Dr. Hiram Woods removed a small tumor from the plica semilunaris and referred it to me for microscopic examination. The growth was whitish in color, soft and rough superficially. The clinical diagnosis was papilloma. After hardening in alcohol the tissue was embedded in celloidin, sections cut and stained in hematoxylin and eosin. The sections showed the usual papillomatous formation, viz., squamous, cuboidal or ovoid and cylindrical epithelium from without inward covering connective tissue fibers, which were loose and wavy. The connective tissue ran into the epithelium at some points. The blood supply was poor. Since the examination of all tumors from the eye has been made systematically, these benign growths are increasing in the literature. During the past three years five such growths have been recorded at the Presbyterian Hospital.

919 North Charles Street.

THE
OPHTHALMIC RECORD
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OF OPHTHALMOLOGY

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Editorials.

THE PROGRAM OF THE OPHTHALMOLOGICAL SECTION OF THE A. M. A.

The plan adopted at the last meeting of the Ophthalmological Section of the American Medical Association of publishing the papers in book form and distributing them among the members of the section before the meeting met with universal approval. The same plan has been adopted for the meeting next year, when it is intended that the book of papers will be sent out about three or four weeks before the meeting. This will give more time for its perusal and study, as well as a better opportunity to prepare discussions.

One of the noticeable features of the last meeting was that the chairman was very frequently called upon to inform speakers that their time limit had expired. In many instances every one in the room, except the speaker, was glad that time had been called.

In order to make these meetings more successful, speakers must boil down their remarks to a point where only the vital and important features remain. Repetition and round-about methods should be eliminated. When a speaker has made his point, let him give way to some one else who will be equally brief. Written discussions will do much toward improving the quality and quantity of discussions.

Many of our papers are highly technical and can only be fully understood after careful study. The presentation of cases and statistical papers are a stimulus toward consulting our own records. The sending out of the papers at least a month before the meeting would afford each member who contemplates attending the meeting an opportunity to prepare his discussions in a manner which would be both entertaining and instructive. It should have a tendency to improve the remarks of some gentlemen who take a long time to say a very little. For we will give these gentlemen the credit of having good intentions. All they need is a little more time in the beginning in order to take up less time at the ending.

A blank leaf should precede each paper in the books sent out. This leaf can be used to write out one's discussion upon. The book should be taken to the meeting for reference. The last meeting was the most successful in the history of our section, and the next meeting should be more successful still.

MELVILLE BLACK.

Reports of Societies.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY, OPHTHALMIC SECTION.

SOME OCULAR SYMPTOMS COMMON TO OR PRODUCED BY AFFECTIONS OF THE NOSE AND ACCESSORY CAVITIES.

was the title of the address of the President of the Academy of Ophthalmology and Oto-Laryngology, Dr. Casey A. Wood, of Chicago.

The fact that pathologic processes affecting the nasal passages and other neighboring cavities may involve various parts of the ocular apparatus has long been known, but the precise conditions are not definitely understood in all instances. The purpose of the paper is to emphasize the importance of a few conditions that equally from the standpoint of the ophthalmologist and the rhinologist seem especially worthy of notice. The differential diagnosis between headache due entirely to neighboring cavity affections and that due to eye diseases alone has not been clearly established. Glasses have been prescribed for frontal headache subsequently shown to be due to ethmoidal disease or infection of the sinuses. *Per contra* it is not infrequently observed that not until after the devious nasal passage has been made straight and other remedial measures applied that the rhinologist suspects his patient's uncured headache may be due to eyestrain. The character, site and other peculiarities of the head pains help to a diagnosis. In reflex headaches, the underlying nervous state is of just as much importance as the gross pathologic changes in producing these symptoms. Ocular headache from eyestrain is almost always bilateral. It is rarely severe or accompanied by nausea, and it is practically always a daylight headache. Head pains from eye defects are almost always frontal, temporal or occipito-frontal. It is usually associated with or follows other eye signs and symptoms. Headaches from eyestrain generally follow prolonged use of the eyes for near work. Such a headache is often accompanied by pain in the eyes themselves, redness of the ocular and palpebral conjunctivæ, discharge and other evident signs of ocular involvement. There is, however, such a condition as a mixed naso-ocular headache.

Vertigo may be set up by both affections of the accessory sinuses and by ocular defects. The ocular diseases usually responsible are heterophorias and heterotrophias of a paretic character. The etiology of the troublesome dizziness accompanying the ocular imbalance that wavers between heterophoria and heterotrophia is less readily referred to its proper origin and may be regarded as a nasal reflex or attributed to other causes. Ocular vertigo rarely occurs unless both eyes are used. A rough test of heterophoria or heterotropia with the red glass will give a fairly accurate notion of their degree and other characters. The history of other symptoms is an aid to the diagnosis of ocular vertigo. Patients often complain of headache brought on by shopping, car riding, etc. The vertigo from ocular defect is plainly the result of an attempt to use the eyes. It almost never comes on while lying in bed or sitting quietly, but rather in the crowded street or when doing something associated with the movement of objects or while rotating the eyeball and at the same time using the accommodation.

There are many functional affections and organic lesions for whose causation nasal and accessory sinus diseases are undoubtedly responsible. Probably an increased flow of tears is more often a sign of nasal than ophthalmic affection. This is true even in cases where organic changes are present in the lids, about the puncta lachrymalis, canaliculi, tear sac or nasal duct. In all cases the nasal passages should be carefully inspected, and any abnormalities likely to damage the lachrymal apparatus should be treated.

It has been well established that numerous diseases of the eyelids, conjunctivæ, oculo-lachrymal apparatus, corneæ, orbital muscles, and even the choroid have been produced by nasal disorders. The most interesting of all the sequels of accessory sinus infection are pareses and paralyses of the extra-ocular muscles. They should not be labeled "rheumatic" or "syphilitic" or "idiopathic" until it is assured that the patient is not a sufferer from sphenoidal or ethmoidal disease. The immediate cause of ocular paresis in nasal cases is probably a peripheral infection of the nerve filaments supplied to the muscles involved.

Of still more importance is asthenopia of nasal origin. In many of these cases treatment of the nasal apparatus has given brilliant ocular results.

The ophthalmologist should be able to recognize these nasal conditions that affect the eye, and the rhinologist should have an intelligent knowledge of the ocular symptoms and lesions produced by diseases of the nasal and accessory cavities. The rhinologist should be a fairly well educated ophthalmic surgeon, and the ophthalmologist should be a practical rhinologist. No specialty in medicine can have a proper or permanent place that attempts to stand alone. Neither ophthalmology nor oto-laryngology is sufficient unto itself: each is but a branch of that ancient and revered tree of medical "knowledge of good and evil."

OPTIC NERVE AILMENTS.

By R. Marcus Gunn, Esq., F.R.C.S., London, England.

Of the cranial nerves, those connected with vision are the most readily involved in diseases and an examination of this extra liability to suffer is called for. From its developmental history and from its structure the retina and optic nerve are to be regarded as forming a part of the central nervous system. It is recognized that they develop in an anterior outgrowth from the same mass of epiblast which forms the brain, while the spinal cord is found in the posterior continuation of this epiblast. This helps to explain the frequency with which these tissues may suffer together though not necessarily equally or in their entirety, from the same general causes, for example in tabes and in insular sclerosis.

The optic nerve throughout its entire extra-cranial course is enveloped in sheaths which are a direct prolongation of the meninges, and the spaces between these sheaths are continuous with spaces between the meninges of the brain. This continuity between the sheaths, sheath-spaces, and contained fluid of the brain and optic nerve is of pathological importance, as explaining the possibility of a direct transmission of disease from brain to nerve or vice versa.

Their position at the base of the brain renders the intercranial optic nerves prone to suffer in inflammation of the meninges and liable to be damaged by the direct pressure of new growth, aneurism, or a distended third ventricle.

After its entrance into the optic canal, the nerve has, for the rest of its course, all the exposures of a peripheral nerve. It is important to remember that in the intracranial part of its course, the dural sheath is intimately adherent to the bone and is also closely applied to the pial sheath and optic nerve trunk, though not so intimately as to prevent all passage of fluid along the subarachnoid space. This is an important fixed area, preventing the nerve from being displaced either way when pulled upon. In the orbit the nerve may be inflamed along with the other tissues; may be implicated through rheumatic or other affections of its sheaths, may be injured in orbital wounds or may undergo atrophy from pressure by tumors or hemorrhage into the intervaginal space surrounding it.

At its termination the nerve may suffer in a peripapillitic choroidal atrophy, by the cutting off of the main part of its blood supply, or may become affected by a continued supernormal intra-ocular tension. In its passage through the scleral aperture the nerve fibers are liable to strangulation by the tight meshwork of the lamina cribrosa.

The optic nerve fibers may degenerate secondary to destruction or impaired nutrition of their ganglion cells in the retina. The optic nerve may suffer from an extension of an ocular inflammation, as in choroiditis. Lastly, the optic nerve may, like other parts of the body, suffer from a general influence produced by serious disease, as in renal disease, syphilis, tuberculosis, severe anemia, and rarely in acute febrile diseases. Thus the nerve may suffer from inflammation, from non-inflammatory pressure, from degeneration of its nutrient ganglion cells, or from primary degeneration of its fibers.

In connection with a late stage of syphilis, atrophic changes are met with, sometimes in the posterior roots of the spinal cord, sometimes in the fibers of the optic nerve, and occasionally in both together. In the spinal cord the tabetic degeneration seems to be selective and the reflex collaterals are first affected; while in more advanced cases the other fibers of the posterior columns become degenerated. In the optic nerve we likewise recognized different kinds of fibers, those forming part of the visual part and those conducting the stimulus which excites the reflex contraction of the pupil. Loss of this light reflex (the Argyll-Robertson phenomenon) is one of the earliest and most common of the symptoms of this kind of late syphilitic poisoning. There seems to be good reason for regarding these reflex fibers as probably collaterals from the visual fibers, and it is certainly suggestive that the first fibers, and in mild cases the only fibers affected are seemingly of very similar character in the optic nerve and spinal cord, being reflex collaterals in both circumstances. There are several anatomical analogies between the optic nerves and the posterior spinal roots, in the disposition of their sheaths and in their minute structure, and it is not unreasonable to regard the ganglion of the root as performing a similar function, as, though not strictly homologous with, the ganglion retinæ.

The essential character of the affection of the central nervous system in tabes seems to be progressive alteration in and removal of the myelin sheath, ending in destruction of the nerve fibers. How these changes are originated is still a matter of conjecture, though the consensus of opinion is in favor of a process of subtle poisoning, due to a product of the micro-organism of syphilitic infection.

Further instance of the optic nerve being implicated along with other parts of the central nervous system may be noted in general paralysis of the insane. Insular sclerosis and certain blood states in which there have been found coincidentally optic neuritis and myelitis; also the cases of ergotism, pellagra, and beri-beri, where changes may occur in the optic nerves coincidentally with other changes of an allied character in the brain and spinal cord, due to the action of a vegetable poison. While the optic nerve is undoubtedly sometimes affected in such disease, a diagnosis of this affection being secondary to disease of the central nervous system must be viewed with caution. There is a possibility of both being the result of some altered blood state.

As regards insular sclerosis, it will be of interest to note how far the optic nerve changes and the symptoms produced correspond with those developed elsewhere, and whether our knowledge is in keeping with the current views of the pathology of this obscure disease. The affection of the optic nerve has rightly been ascribed to an island of the disease being formed somewhere in its course Both in sections of the affected optic nerve and in patches of this disease elsewhere, the leading anatomical change is a degeneration of the myelin sheaths of the nerve fibers, occurring in islands in different parts of the central nervous system, associated with a hyperplasia of the neuroglia. It has been assumed that the initial change is a parenchymatous degeneration.

The next consideration is that of another class of optic nerve affections, when these nerves are involved as a result of their anatomical relation to the contents of the intra-cranial cavity. Then there is what may be termed "foreign irritation," or reflex inflammation theory. Thirdly, the "direct inflammation theory," and finally the direct œdema theory. If any theory of direct transmission be correct, whether it be of an inflammation along the sheaths or of an œdema along the nerve trunk, evidence of pressure along the nerve fiber should be expected before the occurrence of papillitis. This pressure is particularly liable to affect the fiber while in the optic canal and while passing through the scleral aperture. A descending neuritis or descending œdema is, necessarily, a retro-ocular neuritis or œdema in the earlier course.

If obstructed flow in the central vein be the initial occurrence, there should be ophthalmic evidence of this at the very beginning of the process. Exponents of the "reflex inflammation theory" may be asked to produce evidence of a similar mechanism elsewhere in the body and to explain how it is there is no clinical manifestation of this vaso-motor disturbance in the nerve other than in the intra-ocular end. Leber's view is undoubtedly plausible, but it would be satisfactory to have some definite proof of the presence of the pathogenic material and its mode of origin, and an explanation of the rapid subsidence of a papillitis produced in this way or relief of the high intracranial pressure.

The author thinks there is too little attention paid by the rising generation of ophthalmologists to the accurate estimation of differences in fundus level. Retinoscopy, while a useful aid, is a miserable substitute for ophthalmoscopic examination.

There seems to be a connection between the liability to papillitis in brain tumor and the form of the eyeball. In the author's large experience (over nine hundred cases), the eyes have been hypermetropic, while the coincidence with myopia has been very rare. Examination of longitudinal sections through the optic nerve entrance in myopic eyes, shows a peculiarity in termination of the intervaginal space which possibly explains the difference in clinical behavior. In the hypermetropic and emmetropic eye it ends abruptly on about a level with the middle of the scleral aperture, the termination being somewhat sharp and directed toward the optic nerve trunk; while in myopic eyes the dural sheath quits the nerve earlier and the intervaginal space is continued for some distance in the substance of the sclera away from the nerve trunk. Pressure from a distended sheath-space-ending would compromise the optic nerve comparatively early in the one case, while in the other the pressure would be directed in great measure away from the nerve and might be relieved by the filtration of the fluid through the sclera.

Clinically, in connection with high intracranial pressure, there is a swelling of the intraocular end of the nerve, accompanied by a distension of its small vessels. This œdema, if unrelieved, leads later to signs of inflammation. There is disappearance of the papilla œdema on early removal of the high intracranial pressure, without visual failure.

The author contends that, whether the result of direct filtration of fluid from the end of the intravaginal space through the pial sheath, or as a consequence of pressure on the pial veins, the first effect produced upon the papilla is in the form of a pure œdema, in proof of which he adduces the usual absence of early visual loss, the comparatively frequent subsidence of the papillitis on removal of its proximal cause without visible or visual effects being left behind, and the fact that there is nothing histologically abnormal in the swollen papillæ at the stage beyond an œdema.

Venous congestion is a cause of tissue œdema. The fluid exudes from the capillaries and small veins on the distal side of the cause of the venous obstruction and shows itself first where the pressure is greatest; and venous hyperæmia causes a lowering of the general nutrition of the part, shown by an increased tendency to inflammation. Œdema is in some way produced as a result of venous hyperæmia, and both the venous congestion and the œdema are capable of producing changes in the tissue affected, rendering it of lowered vitality and more liable to inflammation and to the escape of red blood cells.

It is of interest to note that degeneration of the posterior columns of the spinal cord frequently occurs in cases of intracranial tumor, and that it is of root origin, which it has been stated is due to changes produced on the posterior roots by the distension of the arachnoid, owing to increased intracranial pressure. It affords a striking analogy as regards effect and anatomical features with what obtains on the optic nerve under similar conditions.

Another class of optic nerve affections is where the nerve suffers from a general influence produced by serious disease. In connection with renal disease, for instance, there may be a simple papillitis, or, more commonly, a papillo-retinitis. In whichever case, the most evident first change is an œdema, the causation of which is usually quite obscure. In some instances it undoubtedly takes place in a more or less mechanical way. A sclerosed artery impedes the circulation of a vein where it crosses over it, and the vein on the distal side of the obstruction becomes first œdematous, and later partly occupied by hemorrhages. This succession of events can be followed in the retina, and it is justifiable to suppose that a similar explanation holds good further back in the nerve itself. But in the absence of visible arterial changes, it must be believed there is some other agency at work. The cause is obscure. There is seemingly no real connection between renal disease and tissue œdema. Both are probably due to one general cause, operating through the blood supply. The ultimate cause may be an altered relation between the blood state and the vessel walls, occasioning a lowered nutritive state of the surrounding tissues, and by a continued chemico-vital process producing an œdema. This would explain why, in the absence of renal disease, similar fundus changes are produced in anemia. No form of fundus lesion must be regarded as the direct effect of renal disease, but as a result of an altered state of the blood or of the vessel wall, or both. In this way is found linked the papilla retinitis of renal disease, of obscure anemia, and of the blood changes produced by great loss of blood and as a result of febrile disease, and similar fundus lesion can be the result of a local œdema produced in quite another way in cases of intracranial tumor.

EXCLUSION OF HYPERMETROPES FROM RAILROAD SERVICE was the subject of a paper read by Dr. Walter R. Parker, of Detroit, Michigan. He said, in part:

The problem presented in this paper is as follows: The present rule of the railroads with which he is connected requires a minimum vision of not less than 20/70 in either eye and a combined vision of 20/20 for engine men. The requirements for admission are 20/20 in each eye. All are aware that many patients at the age of 20 would be able to fulfill the requirements for admission with a hyperopia of three or four diopters, who at the age of 60 would fall below the requirements of 20/70. The question is, how can a simple test be made that will exclude from the service all such applicants and still be perfectly fair to them? After reviewing a large number of cases, Dr. Parker concludes that any applicant with hyperopia not greater than 1 D. would have a distant vision of not less than 20/70 at the age of 60. He also reviews a large number of cases of simple hyperopes under a cycloplegia and has been observed that for each ¼ D. of hyperopia a patient's vision will be decreased one line on the ordinary test card. For instance, a patient with ¼ D. of hyperopia would have vision of 20/30; for hyperopia of 2 D., 20/200. A practical test for excluding low hyperopes consists in placing a 1½ D. lens before the applicant's eyes, and if he reads 20/20 he is rejected. It has not been proven that this 1½ D. test is absolutely right. It possibly should be 1¼, or even 1, as in a large proportion of hyperopes there is little or no latent hyperopia. Practically, however, this has worked no great hardship, as only 8.1 per cent. of the applicants are rejected because of this test.

Discussion.—In the discussion brought out by Dr. Parker's paper, Dr. B. R. Shurley, of Detroit, said he thought a practical test of these men would be made with the signals on the road, and this would possibly be just to the traveling public and to the officers of the railroad. He thought justice would be better conserved in making these tests along practical lines rather than in forming therapeutic deductions from a physiological laboratory experiment.

Dr. H. V. Würdemann, of Milwaukee, said that there was room for such men in other places in the railroad service, where they will not jeopardize the safety of the rolling stock or the traveling public. The reason these old men with defective vision do not get accidents in the course of their career is because they become accustomed to their environment, they practically know the signals before they get them, and it is a kind of luck.

Dr. Wm. Mittendorf, of New York, said that the fact that a great injustice will be done to the older men by laying them off at a certain age is why the standard of hypermetropia should be put up so as to regulate the admission of new men. In this way the question will cease to exist after a little while.

Dr. Edward Jackson, of Denver, said that whether the vision of a hypermetrope would be reduced to 20/50 or 20/70 depends upon the size of the pupil. The value of all tests must be considered with reference to the light to which the person is exposed. He thinks the railroad companies should be prepared to take care of the men who, through color blindness or impaired vision, become unable to hold their positions. This is the only way in which they can get the co-operation of the men and induce them to report when they become unable to perform their duties.

Dr. Ellett, of Memphis, said it was a matter of dealing with averages, but in the examination of private patients under a mydriatic, he had observed about the same proportion as set forth by Dr. Parker in his paper.

Dr. Alvin A. Hubbell, of Buffalo, N. Y., advocated the examination of these men under a cycloplegic as the only sure way to prevent an injustice being done.

Dr. Geo. F. Keiper, of Lafayette, Ind., said the best way to arrive at the truth in these discussions was to call in the men vitally affected, as was done at the last meeting of this Academy, the engineers themselves. He would agree to Dr. Parker's plan in the examination of new men, however.

Dr. Seaman, of Milwaukee, thought an oculist in the examination of these railroad men, should be allowed considerable latitude, as a hard and fast rule would not do for all men.

Dr. Lamb, of Washington, thought it impractical to examine these men in the way suggested by Dr. Hubbell; they are hired in a hurry, and often temporarily, and have not time for such a test. He thought the matter could be disposed of to better advantage by making a rough test, which would determine closely enough for practical purposes.

Dr. H. B. Young, of Burlington, Iowa, did not agree that the average at the age of 21 will be able to read 20/20 with a 1½ D. plus lens, or with the plan of over correction and then reduction. He believed that a man who would not have his vision examined under a cycloplegic on entering the service should be informed that his vision would be examined every year, and that when it went below 20/50 his employment would be terminated. Under the cycloplegic a disc should be put on to shut out the peripheral rays.

Dr. Parker, in closing, said a word on behalf of the much abused railroad as a corporation. He had not found it heartless. but when a man's vision falls below the standard, a committee composed of the general superintendent, the local superintendent, and the oculist, determine what line he can do and he is given another position in the service.

THE TREATMENT OF ACUTE SUPPURATIVE DACRYOCYSTITIS is the title of a paper by Dr. Lee Masten Francis, of Buffalo. He said:

Stricture of the lacrimal duct is the causal factor in the majority of cases. All treatment has for its object the rapid suppression of the pus and dilatation of the stricture. His method of treatment is as follows: If the puncta are not patent, they are freely dilated so that upward massage on the sac will readily empty it of pus. Slitting of the canaliculus is a needless proceeding and sometimes harmful. The patient is shown how to keep the sac well drained by frequent gentle upward stroking. An inunction of unguentum hydrargyi 50 per cent., and unguentum Credé is thoroughly massaged into the skin overlying the lacrimal sac every two hours. The probe is not used until pus has disappeared, or nearly so, and then only with the greatest care and the most gentle pressure. After allowing the probe to remain *in situ* for some time it is withdrawn and the sac and canal freely irrigated with potassium permanganate solution 1/5,000. The sac is then filled with a 25 per cent. argyrol solution, which is allowed to remain. Subsequent probings are continued with decreasing frequency. Predisposing systemic conditions demand the surgeon's attention. While not recommending this for all cases he thinks it may give better results in many instances than the more radical measures in general vogue.

Discussion.—In discussing Dr. Francis' paper Dr. A. H. Hubbell, of Buffalo, doubted the ability of an inunction to penetrate the skin into the lacrimal tissue, and in many instances a probe cannot be introduced, and when this can be accomplished it does not reach the purulent secretion. There must be a rupture some place in order to get the pus to discharge through the canaliculi. The upward drainage, when secured, must have a great deal to do with the abatement of the inflammation.

Dr. Minney thought the success of the treatment depended upon massage.

Dr. Seaman, of Milwaukee, suggested that where there is a rupture of the sac it is sometimes dangerous to use such remedies as argyrol because of the well-known penetrating quality; it permeates the loose tissues surrounding the sac, causing a peculiar discoloration.

Dr. Buxton thought the trouble in the duct not strictly speaking a stricture, but rather a closure from hyperæmia. He thought the use of argyrol the key to the situation.

In closing, Dr. Francis said that in all probability the discoloration spoken of by Dr. Seaman was due to too enthusiastic injections.

PRIMARY TUBERCULOSIS OF CORNEA.

Drs. Eugene Smith and Heneage Gibbs, of Detroit, presented the case of a woman, age 44, whose left eye had troubled her for nine months, during most of which time she had been treated for interstitial keratitis. About three months before consulting the writers a severe attack of inflammatory character set in. When seen by the authors there was slight circumcorneal injection, cornea opaque, except a line 2 mm. wide around the periphery; lustre normal. A white growth could be seen through the transparent margin of the cornea filling about two-thirds of the anterior chamber and extending backwards from the cornea. The eye was enucleated and on examination pronounced tubercle of the cornea; no history of tuberculosis in family nor appearance of disease in patient; never an abrasion of the cornea. The growth was trefoil in shape—one quite large and two smaller bodies, occupying two-thirds of the cornea. The tubercles were in every stage of development. The unaffected portions of the lymph spaces were much distended; further back an increase of the corneal corpuscles, and then numerous straight blood capillaries appeared, varying in size, as many as six or seven radiating from a common center, at which point the tubercles were formed. First appeared numbers of small round cells, the walls of the blood vessels then becoming thicker, the nuclei in them increased, small protuberances having a closely packed row of nuclei in the periphery with a homogenous center, which, gradually increasing in size, became multinucleated, or giant, cells. The formation of such a number of blood vessels in an avascular structure like the cornea and their relation to the formation of tubercles is an interesting point; likewise the fact that none of these vessels contained red blood corpuscles, the latter being represented by brown iron free granules of hematoidin. Chemical reaction also was altered. It was a process of necrosis, not caseation. A careful examination of sections by two skilled observers working independently failed to show a single tubercle.

The authors said that, so far as they knew, this was the only case on record of true tuberculosis of the cornea.

Discussion.—Discussing Dr. Smith's paper, Dr. Walter R. Parker, of Detroit, advocated the use of the tuberculin test in clearing up the diagnosis of these doubtful lesions of the cornea. A surprising number of them would undoubtedly be found to be tuberculosis.

Dr. Adolph Alt, of St. Louis, said that of late phlyctenules are looked upon as modified tubercles, and some two years ago an experimenter had produced phlyctenules by injecting tuberculin.

Dr. W. Reber, of Philadelphia, said that a careful study of the subject will show that ocular tuberculosis will often masquerade as a form of keratitis.

R. Marcus Gunn, of London, England, said he had been long in the habit of regarding phlyctenules as tubercular in character. He had found it in his work in the children's hospital, developing in tubercular children with injected glands, who frequently later developed pulmonary tuberculosis.

Dr. E. A. Willis, of Indianapolis, criticised the authors in that they did not mention the use of antisyphilitic treatment. He thought the proof positive of tuberculosis, primary or secondary, was the presence of the tubercle organism, which in this case is stated not to have been found. Regarding the tuberclin test, Dr. Willis cited a case of his own in which the tuberculin had given no reaction and yet the pathological examination had demonstrated the tubercule bacilli.

Dr. A. E. Bulson, of Fort Wayne, said the tuberculin test depended upon the dose and that where the reaction failed with a small dose it would often be brought out decidedly with a larger one.

Dr. Edward Jackson, of Denver, told of a case he had first seen twenty years ago, and had under observation from time to time since, which he had regarded as primary tuberculosis of the cornea and which had been so regarded by the pathologists who had the case under observation. It had commenced in the margin of the cornea; later there was inflammation of the uveal tract. There had been acute exacerbations and then the eye became quiet. Later the other eye ran the same course. The ultimate result was considerable fibrous opacity, adhesions and partial atrophy of the iris, and finally reduction of light perception. The patient eventually became free from any evidence of local reaction. The family history was negative.

Dr. Lamb, of Washington, emphasized the point made by Dr.

Willis, and thought Dr. Smith had not proven the case one of tuberculosis. He contended that giant cells were found in all inflammatory processes, whether tubercular or sub-acute.

Dr. H. B. Young, of Burlington, cited a case which had carried 1° of temperature wherein he had seen uniform reduction of temperature to a sub-normal under the tuberculin test.

In closing the discussion, Dr. Smith said he had accepted the report of the pathologist in regard to the matter and had not made cultures himself. The woman had had three months' treatment with iodides and in his judgment it was not syphilis. The opacity commenced in the center of the cornea and extended toward the periphery.

OBSTRUCTIVE DISEASES OF THE RETINAL VESSELS

is the title of a paper by Dr. Wendell Reber, of Philadelphia, who claimed that arteriosclerosis, which is the starting point of most all diseases of the retinal vessels, is a much commoner clinical picture than it was twenty-five years ago, it being one of the commonest sequences of the strenuous disordered life. Obstructive disease of the retinal vessels may range from a low-grade endarteritis to partial, or even complete, thrombosis or embolism. It may appear at almost any decade, the period of middle life offering the most favorable soil for its development. The author gives an exhaustive report of the literature, concluding that whether the fault is primarily in the nervous system or a disturbance of nutrition brought about by the presence in the circulating medium of abnormal and irritating elements, when an autotoxemia is once established it is self-perpetuating, and unless arrested will bring about organic changes in the tissues. One constant abnormality associated with retino-vascular anomalies is some disturbance of metabolism evidenced in the majority of cases by diminution in the elimination of urea.

Transient monocular blindness has been pretty generally ascribed to spasm of the retinal vessels. It has been pointed out that so long as the endothelium of an artery remains intact, healthy blood does not clot in it; it is only when the intima becomes disintegrated that this happens. Many cases diagnosed as embolism have really been instances of arterial thrombosis, which may be distinguished from embolism by a history of transient failure of sight, and especially of simultaneous failure of the fellow eye at the moment of onset.

The question as to the actual anatomic lesion in gross obstructive disease of the retinal vessels is so unsettled as to make one hesitate in a final diagnosis. The ophthalmic artery leaves the internal carotid and the branch of the ophthalmic that becomes the central retinal artery is also given off at an approximate right angle, and this same central artery soon after it enters the nerve, and again just when it leaves the nerve to enter the eye, makes a very sharp bend. It would seem almost impossible that a floating embolus should pass off twice from the general blood current to finally gain entrance to the central artery of the retina. Once entered, however, it might be readily arrested and give rise to partial or complete obstruction, especially when it is remembered that the artery under consideration is of practically microscopic caliber. The least thickening of the intima in so minute a vessel may be of moment.

The author described a number of cases from his own practice illustrating how the blocking may produce glaucoma in one eye and true thrombosis in the other, and concluded that it is often a nice question to decide in a given case between thrombosis, secondary glaucoma, and inter-ocular tumor, and that while arteriosclerosis does not forcibly produce glaucoma it may easily prove a predisposing factor. The paper was profusely illustrated with lantern slides.

Dr. Geo. Keiper, of Lafayette, Ind., followed with a paper describing a case of

OCCLUSION OF A BRANCH OF THE CENTRAL ARTERY OF THE RETINA.

the peculiar feature of which is apparent from the study of the fields of visions. Before the ophthalmoscope could discover it, the field of vision had blocked out a defect (in the scotoma), which was the forerunner of the occlusion. The treatment of the case is summed up in the massage of the eye, though at first strychnia sulphate, 1/60 gr. every four hours, was given, together with ascending doses of the saturated solution of potassium iodide, and after the massage, hot applications were made to the eye through the closed eyelids. Dr. Keiper teaches his patients to carry out the massage themselves, supplementing their work with treatment in the office every second day. No cocaine or oil is instilled, the idea being to pursue the treatment according to the principles laid down for massage applications.

Discussion.—The papers of Dr. Reber and Dr. Keiper were discussed in conjunction.

Mr. Marcus Gunn, of London, who opened the discussion, said these changes are easily recognized and ought to be seen by every ophthalmologist and by every general practitioner who can use the ophthalmoscope, as they are very important. He had been impressed with the fact that not infrequently changes of this character, and the overlying arteries causing slight depressions or displacement of the vein, had been the forerunner of serious general disease. He recalled a case of a woman who had consulted him for correction of vision, in whom he had seen these slight irregularities, and had asked for a report of her general condition from her physician. He had been assured nothing was wrong but an obscure dyspeptic trouble. Months later she again came, showing a worse condition of the veins, and at this time a report from her physician showed she had suffered a slight paralytic stroke. Renal trouble was denied, but many months later this woman died of kidney disease. So that years before there was any evidence apparent to two good physicians the signs were easily discoverable in the ophthalmoscopic examination. Mr. Gunn had examined a large number of cases with the ophthalmoscope in the Hospital for the Paralyzed, and found that he could easily see the evidences in all cases of hemiplegia. The same changes were going on in the retina, the kidneys, and the pia, and the ophthalmoscope was the only means of determining it.

Dr. A. W. Allemann, of Brooklyn, thought one great difficulty in making these early diagnoses was in getting a confirmation. It is desired to make the diagnosis in the prealbumin stage, and he believes this can be done where the only clinical symptom is a low urea, with the attendant train of nervous reflex symptoms. He has never failed in the diagnosis where he was able to get a confirmation from the chemist.

Dr. H. V. Würdemann, of Milwaukee, said that a few cases he has seen followed mumps, possibly developed by trauma. Twenty cases or more had been subjected to deep digital massage, about half of which had made complete or partial recovery. A very large clot cannot be broken up by any treatment. Massage is only of avail during the first few days, and the pressure must be so heavy as to dislodge the clot, and is so painful that patients will seldom submit to more than three to five such treatments.

Dr. Wm. Mittendorf, of New York, did not always regard sudden blindness as a sign of serious blood vessel disease.

Dr. Lamb, of Washington, believed all these cases were, in the beginning, nutritional.

Dr. Lukens, of Toledo, told of a case of sudden blindness that had been brought to him, on which he had employed the massage treatment, but the patient refused to have it continued; she returned after a short trial of other methods. The woman is able to see enough to play cards, and he thought would have been greatly helped had the massage been carried out in the first few days.

Dr. J. S. Lichtenberg, of Kansas City, made a plea for the examination of the periphery as well as the macula.

Dr. Reber, in closing, said he had written the presidents of many life insurance companies urging the importance of studying all cases with the ophthalmoscope, and they had answered that they were spending money enough on medical examinations. He thought it of the greatest importance that the value of these examinations be impressed upon general practitioners.

Dr. Keiper agreed as to the value of the ophthalmoscopic examination, but contended that beyond that, one should go further back and take a perimetric chart showing the defect before it is visible to the ophthalmoscope itself.

TREATMENT OF PARTIAL OPTIC AND RETINAL ATROPHY BY ELECTRICITY AND MASSAGE

is the title of a paper by H. V. Würdemann and G. I. Hogue, of Milwaukee, read by the former. The treatment of ocular diseases by means of electricity and massage has been sadly neglected by the regular practitioner, and greatly abused by the charlatan. A warning must be given as to the indiscriminate use of massage of the eye, as great damage has been done thereby. Electricity is only a placebo in the hands of empirics; properly used it can be of incalculable benefit in many cases. The physiological action of electricity is wrapped in more or less obscurity; it very much resembles the medicines we classify as alteratives. In the migration of ions that takes place, the cells are stimulated to increased energy and regeneration occurs. There seems to be no doubt that some rearrangement of molecules takes place in the tissues and the compounds thus formed, as well as the electrolytic process itself, may be largely responsible for the effects of electrical treatment. While not a specific, electricity possesses power to increase nutrition, excretion of waste matter and cause local anesthesia. Examination of the optic disc before and after electrical treatment will serve to prove this statement. It is important to use only the weakest current possible lest damage be done to the retina. The anode, or positive pole, has the following power: Anesthetic, sedative, hemostatic; it is less destructive than the cathode, or negative pole, which acts as a stimulant, quickens absorption, increases moisture, and dilates blood vessels and lymphatics. The contra-indications to the use of electricity in ocular diseases are iritis, iridocyclitis, or any acute inflammation of the eye.

Massage, which has been employed in the treatment of diseases of the eye since the early seventies, has come into particular prominence during the past fifteen years. Most of the authors have employed digital massage, but mechanical massage is an improvement over the digital method (except where very powerful action is desired, as in recent embolism of the central artery), first, on account of cleanliness; second, because of more uniform vibrations; and, third, it is less distasteful to the patient. Contraindications to massage are, as in electricity, any acute inflammation of the eye. Incidental uses of electricity and massage are glaucoma, corneal opacity, choroiditis, retinitis pigmentosa, phlyctenular keratitis, etc. After describing several cases and reviewing the literature, the author concluded that electricity and massage are of value for stimulation of atrophic structures. The effect gained is permanent if long continued. By the use of improved instruments the methods are facilitated and should be used by all regular practitioners. Dr. Würdemann gave a demonstration with a Victor machine.

Discussion.—In the discussion of Dr. Würdemann's paper, Dr. Ellett, of Memphis, said he had had no good result in the employment of electricity, and he believes that most practitioners lack the necessary knowledge of electricity to enable them to secure good results through its use in their practice.

Dr. Lichtenberg, of Kansas City, and Dr. Willis, of Indianapolis, reported negative results in the use of electricity and mechanical massage, while Dr. D. T. Vail, of Cincinnati, had been more successful, having had in some cases beautiful results, while in others the process seemed to have been harmful.

Dr. Würdemann, in closing, said he realized that he was placed in the position of the reporter who sent in news which was "important if true." In many cases he had secured flattering results, but had had the misfortune to have a case which had progressed much faster under the treatment than before the same was instituted.

EYE STRAIN AND CRIME.

Dr. George M. Case, of Elmira, N. Y., ophthalmologist to the New York State Reformatory, set forth the importance attached to eye strain in the etiology of many obscure nervous phenomena, classed under "functional neuroses." If an uncorrected refractive error will disturb the equilibrium of the nerve centers after mature development has taken place, it must follow that should a like condition exist in the developing child, the nerve centers would be disturbed and perversion of intellectual, moral and physical forces would be probable. Education begins in infancy through our mental appreciation of objects around us through the medium of the eye and ear, and the career of every man is made not only by his environment, but also by his physical equipment for life's work. Our penal institutions, especially juvenile and intermediate reformatories, are composed of young men who disclose themselves to be in their natures fundamentally like young men wherever found, responding to the same influences in about the same way. Many causes have led to their present condition, among them being lack of proper parental control, environment, associations, etc., and impairment of the two principal human senses, hearing and seeing, especially the latter. They are handicapped, and failing in the race because of the unequal struggle, they seek to gain by foul means what they ought to get by fair. From childhood up the world to them is never quite right. They are taught to think white when they see black; what they are told is straight, to them seems crooked. They think the whole world is wrong and become criminals from necessity. The individual with poor vision has a struggle before him to meet the exigencies of life. It is a matter of daily observation that eye strain will disturb mental processes, producing mental inaptitude and backwardness in children. Irritability to the verge of irrascibility may be the result of a constant nagging eye strain, producing serious inroads upon the nerve supply. How far this may be carried towards producing mental unbalance, insanity and criminal tendencies, alcoholic and drug habits remains to be proven.

Truancy in school children may be traced largely to this cause, which, frequently repeated, precipitates the individual into the life of a vagabond and criminal. An examination of 5,000 inmates on entering the institution, at an average of 20¾ years, showed 2,735 addicted to the use of alcohol, and 675 suffering from defective eyesight. It is apparent that the connection between the two is more than accidental, and this holds not only in the criminal, but in all walks of life. It is possible that if more work were done along the line of correcting these defects less money would be needed in building and maintaining prisons. The ratio of improvement in school and trades after glasses had been worn was almost equal to that of those who had no refractive error.

THE RELIEF AND CURE OF MIGRAINE BY THE CORRECTION OF ERRORS OF REFRACTION.

By A. R. Baker, M.D., of Cleveland, Ohio. Dr. Baker said he had no hesitation in making a diagnosis of migraine in all cases of headache with periodical attacks of scintillating scotoma, flashes of light or hemianopsia followed by intense headache, nausea and vomiting. In some cases the attacks are relatively mild, while others are so severe as to totally incapacitate the patient for two or three days. He doubts the statement of many authors that migraine always disappears at the age of 40 or 50; this may be true in the case of ordinary laborers and housewives. With advancing presbyopia they accept spectacles, choose another occupation, or give up the use of the eyes, and are thus relieved of eye strain, but professional people who continue to use their eyes more often find migraine greatly increased with the coming on of presbyopia. It is possible for a person with emmetropic eyes to have migraine from eye strain, in which case the correction of an error of refraction may not cure the migraine.

Dr. Baker sent letters of inquiry to 100 patients inquiring if their headaches had been cured by the use of spectacles. A significant observation is that of the 100 patients there was an astigmatism corrected in one or both eyes in 85 cases, and at an oblique axis in one or both eyes in 42 cases. Anisometropia and heterophoria are also frequent etiological factors. Heredity has always been recognized as having an important bearing in causing migraine. An individual with a family predisposition, an astigmatic eye and an occupation or profession requiring much close use of the eyes will very frequently suffer from sick headache. Dr. Baker thought it the duty of ophthalmologists to reiterate the fact that the most frequent and usual cause of migraine is eye strain, until the general practitioner comes to recognize this fact.

Discussion.—In discussing the papers of Drs. Case and Baker, Dr. C. S. Means, of Columbus, Ohio, member of the school board of that city, said he had urged the teachers to make a rough test of the vision and hearing of their pupils, and nine times out of ten the children who had been thought stupid or bad had been shown in this manner to be unfortunate, having defects of vision or hearing, or both.

Dr. Vail, of Cincinnati, cautioned against the ill effects of suggestion in the minds of these children, who often have normal eyes, but abnormal vision. There are hysterical conditions brought on in the examination of over-enthusiastic men.

Dr. Reber, of Philadelphia, thought that migraine increasing after 40 is likely to be muscular, and that the question of heredity was explained by peculiarities of orbital formation.

Dr. Case, closing the discussion of his paper, called attention to the lack of interest in these matters being due to the want of education in physicians as well as officials in eleemosynary institutions.

Dr. Casey Wood, of Chicago, said he had not had as great success as Dr. Baker in curing these ophthalmic migraines as there seemed to be a neurosis in these cases.

Dr. Alvin A. Hubbell, of Buffalo, N. Y., described

THE SPONTANEOUS DISLOCATION OF BOTH CRYSTALLINE LENSES IN TWO MEMBERS OF THE SAME FAMILY.

The fact was very suggestive of some hereditary condition existing by which those peculiar degenerative changes of the suspensory ligament have taken place which are necessary to this rare form of lenticular luxation. That such an influence was present was rendered still more probable by the suggestive statement of one of the patients that in three generations there are thirteen blind, and others with impaired vision. This patient also suggests that this state of affairs may be due to relatives intermarrying.

Dr. Thos. Faith, of Chicago, added a similar history of two sisters with the same phenomena, whose mother and aunt both had cataract, and a third sister with cataract.

PUNCTATE OPACITIES OF THE POSTERIOR LENS CAPSULE.

was the title of a paper by Dr. W. F. Mittendorf, of New York. These occur in nearly 1 per cent. of all eyes, and are usually found in the region of the attachment of the hyaline artery during the growth of the eye in intrauterine life, and vary in size according to the size of the remaining portion of the hyaline artery, from that of a hemp seed to a small dot. The majority appear to be in the posterior surface of the lens capsule, and move in an opposite direction to the movement of the eyeball. They are to the nasal or inner side of the center of the lens capsule. They show no tendency to grow and do not affect the acuity of vision in eyes in which they occur. While puzzling to the beginner in the use of the ophthalmoscope, they have no pathological significance. They are met with in adults as well as very young children.

Dr. Würdemann, of Milwaukee, said that transillumination of the eye will show these spots in a larger proportion of cases than any other means of examination, and to a surprising number.

EXTRACTION OF THE CATARACT WITHIN THE LENS—THE SO-CALLED INDIAN METHOD.

By Dr. D. W. Green, Dayton, Ohio. While acknowledging the strong theoretical claims for recognition of such an operation, there are inherent difficulties in its performance, and dangers to which an eye so operated is especially exposed. In some cases certain conditions of the capsule or of the zonula may render the delivery of the lens by this method impossible. The operation is more difficult than either the simple or combined method, and accidents and complications, in a long series of operations on patients in the Soldiers' Home, have been met with, and resulting vision has not been so good. The operation is a delicate one, requiring a thorough knowledge of the conditions that may be present, and a high degree of skill for the proper performance. There is great fascination in the delicate manipulation and the feeling that one is rid of the possibility of an after cataract. Only appropriate cases should be selected and only shrunken cataracts with thickened capsule can often be delivered by this method. The severest criticism that can be brought against the method is the unsightly appearance of an eye so operated. When the lens and capsule come away there is nothing to support the vitreous except the hyaloid membrane, and this may rupture.

CAPSULE EXTRACTION WITH PRELIMINARY CAPSULOTOMY

is carefully described in a paper by Dr. Homer E. Smith of Norwich, N. Y. Dr. Smith performs these operations in his office, having had the patient under careful observation for a week. The usual septic and antiseptic precautions are taken before the operation is begun; the eye is cocainized, a speculum is introduced, and the fixation forceps applied. With a small Knapp's knife needle a puncture is made through the upper part of the cornea, the blade carried down to the lower margin of the dilated pupil, and then brought to its upper border, making an incision not only through the capsule, but partly into the lens substance itself. A similar cut, but at right angles to this, is then made, and the knife withdrawn. The speculum and fixation forceps are removed, the eye flushed with an antiseptic, and the bandage re-applied. If the cut in the capsule is practically invisible the operator knows that a large nucleus is present and the usual section of the upper two-fifths of the cornea will be required; if an escape of semi-gelatinous lens matter occurs a section of one-third will suffice, while if there issues a milky liquid it is evident that the cataract is hyper-mature and the section may be made with the angular keratome. A minimum of risk to the healing process is thus assured. There is a period of about four hours between the capsulectomy and the extraction. The final steps in the operation do not differ from those usually employed. The advantages of a preliminary capsulectomy are: 1. The knife needle can be made superlatively sharp and efficiently cuts the capsule in both directions: 2, only through the grossest carelessness can the suspensory ligament be ruptured or the lens dislocated, for it is held firmly in place by the vitreous behind and the aqueous in front; 3, ample space is given through the dilated pupil, and the point of the knife may be kept fully in view during the division of the capsule and the operator has the satisfaction of knowing that this is perfectly accomplished; 4, the iris cannot be wounded or entangled in the instrument, and there can be no bleeding to obscure the field of operation. In brief, it simplifies and makes certain a step in the operation which is usually fraught with difficulties and dangers.

Discussion.—The papers of Dr. Green and Dr. Smith were discussed in conjunction. Dr. Hubbell would not undertake in private practice an operation yielding such results as that described by Dr. Green.

Dr. Edward Jackson said that he had not the fear of secondary operations acknowledged by many, but thought them a positive advantage in a great many elderly people; the vitreous is often considerably disorganized, and the eye is safer if protected by the capsule. While he would not hesitate to perform this operation as described, if necessity demanded, he would not make it a matter of routine for fear of something unforeseen occurring to the patient or to the operator in the interim. He has no difficulty in getting a sufficient opening in the capsule, although he had frequently inserted a Knapp's knife needle twice in order to get good access.

Dr. Würdemann thought the Indian operation was not one of choice, but of selection in persons over 50 years of age with hypermature cataract.

Dr. Francis Valk, of New York, thought one would not be justified in attempting the operation, on account of the consequent loss of vitreous. He feared in these cases there would be cystoid healing.

Dr. Green, closing the discussion on his paper, said he had not been very favorably impressed with the operation, but had made the investigation for scientific purposes. He had not lost an eye in his series of 22 cases and had not encountered cystoid healing, but had loss of vitreous in 35 per cent. of the operations.

HIGH HYPERMETROPIA,

By Dr. T. B. Schneideman, of Philadelphia, is the title of the last paper read. He said in part: High hypermetropia possesses, in addition to certain features common to hypermetropia in general, certain features peculiar to itself. The diminution in the diameters giving rise to the small eyeball is an exaggeration of what is characteristic of ordinary hypermetropia; this is ascribed to lack of development. But the special occasions or conditions responsible for such failure to develop normally have not been discovered, lying in the obscure dominion of heredity and development in general. The smallness of the globe would seem to favor more extended excursions, but such has not been found to be the case, there seeming to be a weakness of the extrinsic muscles, which have suffered from the dystrophy with the other ocular structures. Even the ciliary muscle has suffered similarly. The range of accommodation is generally found to be less than in normal eyes and the nervous mechanism shares in the general inferiority. The ophthalmoscope furnishes positive proof of this as regards the optic nerve itself. The defective vision is frequently a marked phenomenon, which has been ascribed to a smaller amount of percipient elements of the retina. As the eye is not a single point, but its anterior posterior axis nearly an inch in length, the question from what point ametrophia should be counted has been frequently discussed, but is not settled. While this is a matter of indifference in the lower degrees, in the higher, comparisons between the different cases can only be made with exactness when the same reference point is chosen in each. The author thinks it is preferable to select one of the cardinal points, rather than an anatomic point, as they enter into the calculation concerning the dioptric apparatus. Refraction of nearly 6,000 individuals by the author showed 222 eyes having more than 4 D. of H. Of the cases examined, 304 eyes were affected with myopia.

Discussion.—Discussing the paper, Dr. Jackson agreed that the author was quite right as to the proper point from which to measure the hypermetropia. The very high hyperopes he had measured with the ophthalmometer had none shown lack of curvature in the cornea. The deficiency in accommodation noticed in young patients goes with the deficient development of the lens.

Dr. Reber told of three cases in one family that had 3 diopters of astigmatism and every one squinted.

Notes and News.

(Personals and items of interest should be sent to Dr. Frank Brawley, 72 Madison St., Chicago.)

In Heidelberg Dr. Rudolph Schreiber has been made Privatdozent.

Dr. F. Park Lewis, of Buffalo, is expected to return from Europe this month.

Dr. Ernst Blessig has been appointed Director of the St. Petersburg Eye Hospital.

Dr. Lyman Ware and Mrs. Ware, of Chicago, have recently returned from Europe.

Dr. and Mrs. Albert E. Bulson of Fort Wayne, Ind., have returned from a trip through Europe.

In Leipzig Privatdozenten Dr. Birch-Hirschfeld and Dr. Bielchowsky have received appointments as professors.

The first meeting of the Chicago Ophthalmological Society for the coming year will be held on Tuesday, Oct. 9, 1906.

Dr. John O. McReynolds, of Dallas, Texas, has been appointed as a medical inspector of the Dallas Board of Education.

Dr. J. R. McIntosh and Dr. G. R. J. Crawford have been re-appointed oculists to the St. John Public Hospital, of Montreal.

During the first two weeks of August, 127 immigrants were deported from Ellis Island, New York, on account of trachoma.

Dr. Thomas McDavitt, of St. Paul, has been elected secretary of the House of Delegates of the Minnesota State Medical Association.

Mr. and Mrs. L. M. Hamline announce the marriage of their daughter, Ethel Margaret, to Dr. Paul Guilford, of Chicago, Sept. 19, 1906.

Dr. John P. Davidson occupies the chair of ophthalmology and otology at the Medical College of Virginia, according to the recent faculty list.

An eye and ear department has been added to St. Elizabeth's Hospital, Elizabeth, N. J. Dr. Norton L. Wilson and Dr. Chas. H. Schlichter are in charge.

A new College of Physicians and Surgeons has been organized in Little Rock, Ark. Dr. Chas. S. Stephenson holds the chair of eye, ear, nose and throat.

The New York Institute for the Blind and the Manhattan Eye and Ear Hospital have each received bequests of $10,000 in the will of the late Mrs. Amelia B. Lazarus.

The steamer Westerland recently arrived at Philadelphia with 340 steerage passengers, 50 of whom had trachoma. A large percentage of these will be sent back on that account.

Dr. T. A. Barber, of Meridian, Miss., has been elected to the chair of eye and ear of the Mississippi Medical College, with Dr. F. C. Walton in charge of the clinical department.

Dr. Frank Vinsonhaler has been elected to the faculty of the Medical Department of the University of Arkansas, as Professor of Ophthalmology and Otology, and Dr. John G. Watkins has been elected as assistant to this chair.

Dr James Moores Ball has resigned as managing editor of the *Annals of Ophthalmology,* and Dr. W. T. Shoemaker, of Philadelphia will succeed him. Dr. Ball found it impossible to give the time necessary to properly carry on the publication.

Dr. F. Schandinn died on June 22 after a short severe illness, with a septic infection, a result of his research work. Although a young man he was celebrated for his discovery of the spirochaete pallida as the cause of syphilis. He was connected with the Tropenhygienischen Institut at Hamburg.

The Visiting Nurses' Association of Philadelphia treated 1,525 children last year for minor troubles, many of them being simple affections of the eye and ear, under the direction and care of a physician. Most of these cases would doubtless have been neglected but for this very commendable work of the nurses.

New York is having a serious time with trachoma in the densely populated school districts of Manhattan and Kings. Dr. Lester of the New York Eye and Ear Infirmary gave out the statement that about one-third of the school children in these districts are infected in spite of strenuous efforts upon the part of the Board of Health.

As a result of the recent civil service examination of candidates for places on the staff of the Illinois Eye and Ear Infirmary, Dr. N. A. Young received an appointment as assistant surgeon in the eye department, Dr. W. P. McGibbon assistant surgeon in the ear department, Dr. Francis Lane, assistant pathologist, Dr. F. I. Brown, assistant pathologist. Internes are Drs. Clark, Fenton, and Clement.

Dr. Lewis C. Wessels and Dr. Alexander C. Butcher have been detailed by the Philadelphia Board of Health to aid the "Pennsylvania Society to Protect Children from Cruelty." They visit the childrens' homes and examine the eyes, ears, noses and throats of from ten to eighteen children a week. A card catalogue of the findings is kept for reference and parents are notified and their consent gained for necessary operations.

At the thirty-first annual meeting of the American Academy of Medicine, held in Boston, June 2 to 4, 1906, the following officers were elected: President, Dr. Casey A. Wood, Chicago; Vice-Presidents, Dr. Wm. L. Estes, South Bethlehem, Pa.; Dr. Jamse A. Spalding, Portland, Me.; Dr. Woods Hutchinson, Redlands, Cal.; Dr. Guy Hinsdale, Hot Springs, Va.; Secretary, Dr. Chas. McIntire, Easton, Pa.; Assistant Secretary, Dr. Alex R. Craig.

Dr. William Brandegee died suddenly of cerebral hemorrhage, at his home in New York City, aged 42 years. He was instructor in otology at the University and Bellevue Hospital Medical College, and senior assistant surgeon to the New York Eye and Ear Infirmary and a member of the American Laryngological, Rhinological and Otological Society of New York County, Medical Association of Greater New York, Otological Society of New York, and Bellevue Medical College Society.

A bill has been introduced in the House of Lords in England by Lord Addington, entitled, "An Act to Regulate the Practice of Opticians as Regards the Testing of Sight." Opticians by this act are to be registered and given certificates showing that they have satisfactorily passed the examination of the "Board of Optical Registration," which is created by the act. They are not to use any name or title showing that they are qualified medical practitioners or to treat or use drugs in the eyes.

The Michigan State Board of Registration at the May examination gave the following questions on eye, ear, nose and throat: (1), What do you understand by the terms hypermetropia, myopia and astigmatism? (2), What treatment do you recommend in cases of ophthalmia neonatorum? In what way can you prevent its occurrence? (3), What is the treatment of acute periostitis of the mastoid process? (4), What is croupous laryngitis, its causes and pathologic anatomy? (5), What is acute tonsillitis, its causes and pathologic anatomy?

The article on the "Health of School Children" by L. H. Gulick, of New York, and published in the *Medical Record* of July 25, should interest ophthalmologists. He goes into the subject of school hygiene, over-study, feeble-minded and defective children, vision, hearing, lighting, etc. He advocates more individual care with a knowledge of the home environment of each child, smaller classes, special classes and instruction for defective children, and a systematic education of the general public upon this important question, the needs of school children.

The following is a partial list of articles published on school inspection, etc., in the past five and a half years, and indexed in the index of the Journal of the American Medical Association: "Medical School Inspection," G. Emerson, Brooklyn Medical Journal, May, 1904; "Diseases of School Children," P. H. Bryce, Canada Lancet (Toronto), April, 1904; "Medical Inspection of Schools," A. Friedlander, Lancet-Clinic (Cincinnati), May, 28, 1904; "Medical Inspection of Schools," H. MacMurchy, American Medicine (Philadelphia), May 21, 1904; "Duties of Medical School Inspection," Journal A. M. A., May 7, 1904, page 1243, (abst.); "Medical Inspection of Schools," Adelung, Southern California Practitioner (Los Angeles), November, 1904; "Sanitary Inspection of Schools," H. Surmont, Presse Médicale (Paris), No. 25, March, 1905; "Educational Influence of Medical Inspection of Schools," Axmann, Deutsche med. Wochenschrift (Berlin), xxxi, No. 5, Jan. 31 1905; "Relation of School Methods to School Diseases," W. J. Herdman and J. H. McBride, Journal A. M. A., April 15, 1905, page 1175.

The *Journal of the American Medical Association* reports the following remarkable case in Wolverhampton, England. A cigar merchant was found covered with blood which he explained by saying that he had had a fall. A physician was called and next day the man had six fits. Later he went to the Wolverhampton Eye Infirmary because he had lost the sight of one eye. He was treated up to the time of his death as an out-patient of the hospital. The autopsy revealed the fact that there was a small scar of the right temple, a bullet in two fragments, a fracture of the base of the skull, and an abscess of the brain. One fragment of the bullet had lodged in the brain, where it produced the abscess. The other had destroyed the optic nerve. It was shown that the deceased was a heavy drinker, and that on the morning when he was found covered with blood a revolver had been taken out of the bed. The scar on the temple was about half an inch in diameter, white, with a black mark. It was partly hidden by the hair and might easily be overlooked. The extraordinary fact was that a man suffering from such injuries should have been treated by several physicians without any suspicion of the nature of the case.

INTERNATIONAL PRIZE FOR TRACHOMA.—The imperial minister of the interior for Hungary offers an award of 1,000 crowns for the best work on the etiology of trachoma. It is necessary that plenty of time be given for its preparation, so the limit is Dec. 31, 1908. (Address Budapest, Hungary, I. Var. Belügyministerium.)

The work may be submitted already printed, but its first publication should be in 1907 or 1908. The author may use the Hungarian, German, French or English languages.

The jury will be appointed by the minister of the interior for Hungary. The report of the jury will be made to the XVI International Medical Congress in September, 1909.

For the Imperial Hungarian Minister of Interior:

University Professor DR. EMIL V. GROSZ,
Commissioner for Trachoma.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, OCTOBER, 1906. VOL. XV. No. 10, NEW SERIES.

Original Articles.

UNILATERAL ROTARY NYSTAGMUS.*

ALEXANDER DUANE, M.D.
NEW YORK.

The following case is reported on account of its rarity: Mrs. O. B. A., aged 24, first seen May 10, 1906. For several years, but especially during the past few months, has noticed that at times she sees double (one object rising vertically out of the other) and that the objects she is looking at appear to dance up and down. Has also noticed when looking in a glass that the left eye oscillates. Six years ago had a suppurating gland in the neck which was removed two years later. Typhoid fever three years ago. Has otherwise been perfectly well.

Both eyes normal exteriorly. Fundi normal, except that in both, but especially in the left eye are groups of punctate brown or blackish dots in close relation with the retinal vessels. No atrophy of adjoining chorioid or retina and interior otherwise normal, although details of left fundus are somewhat blurred by the nystagmus. Vision, 15/15 each; under homatropin shows for far distance, R. + 0.50 + 0.25 cyl. 155°; L. + 0.50 + 0.25 cyl. 40°. Fields and color fields, pupils and pupillary reactions normal.

Excursions of eyes normal in all directions, but converging power is weak (convergence nearpoint 6 inches from root of nose). Tendency to slight vertical diplopia in various parts of the field of fixation, but this is evidently due, not to paresis of any of the ocular muscles, but to the nystagmus. That is, the only way in which she sees double is that an object looked at will suddenly separate into two images which then rhythmically unite and separate again.

In the right eye no trace of nystagmus; not the slightest oscillation being detected even with the ophthalmoscope. In the left eye at times no vibration, at times true nystagmus, consisting of rapidly repeated, short, quick, to-and-fro oscillations. In the primary position the nystagmus seems to be sometimes mixed (vertical and rotary), at other times purely rotary (opposite to the hands of the clock). When the eyes are directed to the right, the nystagmus is largely vertical; when they are directed to the left, the nystagmus is slow and mainly rotary. Nystagmus is present also when the eyes are directed up or down. If the head is tilted to right shoulder marked rotary nystagmus; when head is tilted to left shoulder slow rotary or more marked vertical nystagmus. Nystagmus not arrested by covering either eye and seems rather more marked when the left eye alone is used for fixing. It is also somewhat greater in forced convergence. No evidence of ear disease beyond a slight catarrhal otitis media.

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* Read before the American Ophthalmological Society, June, 1906.

Careful examination by Dr. Joseph Collins shows absolutely no evidence of organic nerve disease nor of disease of any of the organs Examination of the urine shows no abnormality. No evidence of digestive toxæmia. The patient was directed to wear constantly the glasses fully correcting her astigmatism and hyperopia; to practice convergence by looking sharply at a pinhead gradually approximated to the eye, and to exercise regularly with a stereoscope (Wells' diagrams).

The case is interesting on several accounts:

1. It is an instance of *unilateral rotary* nystagmus. Unilateral nystagmus itself is rare, only some 50 or 60 cases having been reported. Of these the large majority are vertical. In my summary of 52 cases published a year ago,[1] I found that 34 were vertical, 11 horizontal, 5 rotary, and 2 mixed. Of the 5 cases of rotary nystagmus noted in this summary, one occurred in my own practice and was described in the article. It seemed there to form one of the initial symptoms of a general paresis.

2. THE SYMPTOMS.—These were (a) Apparent oscillating movement of objects looked at. This is frequently present in acquired nystagmus and particularly in the unilateral form. (b) A peculiar oscillating diplopia. This could occur only in a unilateral or at least in an asymmetrical nystagmus. (c) The fact that the patient herself could see her own eye oscillate when she looked in a glass. This also, as Alfred Graefe points out, can occur only in the unilateral form.

3. THE CAUSATION.—As pointed out in the article referred to,

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[1] New York State Journal of Medicine, July, 1905.

unilateral nystagmus when developed after the age of infancy, is due to (a) Unilateral amblyopia or squint. (b) Unilateral opacity of the media. (c) Unilateral astigmatism. (d) Nervous disease, especially multiple sclerosis.

In the large majority of cases squint or some other one-sided muscular anomaly is present. In the present case no one of these features was found. There was no anisometropia, no ametropia of any amount, no unilateral amblyopia except such as was due to the nystagmus itself, no squint or other muscular deviation except a slight convergence-insufficiency, and no evidence of nerve or ear disease.

4. TREATMENT.—Treatment has helped in a few cases of nystagmus. Such treatment has consisted in correction of the astigmatism or other refractive errors, relief of the muscular abnormality by tenotomy or advancement, removal of cataract or other opacity causing amblyopia, exercises with the stereoscope, practice in reading with a perforated diaphragm, and exercises in maintaining fixation in different position of the gaze.

In the present case the refraction was fully corrected. Convergence exercises seemed indicated on account of the convergence-insufficiency and it was thought that systematic practice with the stereoscope would, especially in a case of unilateral nystagmus, facilitate the restitution of a perfectly co-ordinated movement.

REMARKS AS TO THE NOMENCLATURE OF NYSTAGMUS.

Distinction Between Nystagmus and Pseudo-nystagmus.—In regard to this and similar cases I would like to emphasize a point that seems to me of distinct practical importance. Many, especially among the neurologists, group under the head of nystagmus, two sorts of tremor, viz.: (a) The short, usually rapid, rhythmical and effortless, to-and-fro oscillations which in many cases occur when the eyes are in the primary position, and which, even when they occur in secondary positions of the gaze never have a jerking character. This is true nystagmus. It is not necessarily nor, indeed, usually associated with defects of the eye muscles *per se.* (b) Jerking, rather extensive oscillations expressive of effort and not always rhythmical, which occur only when the eyes are carried toward the end of their excursion in some special direction. In my belief such oscillations always indicate deficient power or at least exhaustion or irregular action of the muscles themselves. It is properly denoted nystagmic twitching or pseudo-nystagmus.

Now, as Uhthoff, who has insisted upon this distinction, shows, pseudo-nystagmus occurs in a great variety of nervous diseases, and indeed, often occurs in persons who are quite healthy. It has therefore, very little diagnostic significance. On the other hand, true nystagmus, not due to optical defect nor dating from childhood, and not traceable to occupation, as in miners' nystagmus, nor to ear disease, is characteristic of only a few affections, notably of multiple sclerosis, cerebellar disease, and syringomyelia. Hence, as a sign of nerve disease it is of considerable diagnostic importance. It seems, therefore, important, that the distinction between these two forms of tremor should be carefully observed.

HIGH HYPERMETROPIA.*

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Professor of Diseases of the Eye, Philadelphia Polyclinic.
PHILADELPHIA, PA.

High hypermetropia possesses, in addition to certain features common to hypermetropia in general, certain phenomena which are peculiar to itself. The diminution in the diameters giving rise to the small eyeball is an exaggeration of what is characteristic of ordinary hypermetropia. This diminution is ascribed to lack of development. But the special conditions or occasions responsible for such failure to develop normally have not been discovered, lying as yet hidden in the obscurity which prevails in the domain of heredity and development in general.

The diminished radius of curvature of the cornea which has frequently been observed in cases of high hypermetropia and which would tend to increase the refraction seems to be a part of the diminution suffered by all of the ocular structures. The smallness of the globe would seem to favor more extended excursions, but this has not been found to be the case; the field of fixation of hypermetropes of this class has been found to be restricted; their mobility is inferior to the normal. The cause of this appears to be a weakness of the extrinsic muscles which have suffered from the same dystrophy as the other ocular structures. Even the ciliary muscle, contrary to what might be expected, has suffered similarly. The range of accommodation has generally been found to be less than in normal eyes or than those affected with moderate error. The nervous mechanism of such eyes shares in the general inferiority. The ophthalmoscope furnishes positive proof of this as regards the optic nerve. The papilla not only seems smaller but calculation shows that it actually is so; moreover, it very generally presents an abnormality as to color, being at times paler than normal and in other cases of a deeper hue, so as to be scarcely distinguishable from the surrounding fundus; its outlines are often indistinct and irregular.

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* Read before the American Academy of Ophthalmology and Oto-Laryngology, September, 1906.

The retinal vessels present a peculiar disposition; they are tortuous and suggest in many cases the appearance of optic neuritis. Horner's hypothesis of this peculiarity that the retinal vessels make their way, so to speak, into a closed cavity already formed serves to explain these appearances.

A matter of capital importance in many of these cases is the defective vision which is frequently so marked a phenomenon in high hypermetropia. The diminished visual acuity has been ascribed among others by Donders to the fact that "a smaller number of percipient elements of the retina are affected than in emmetropia by reason of the diminished retinal images and that this discrepancy could only be compensated if a given smaller surface of the retina possessed the same number of percipient elements as the larger surface of emmetropic eyes." But Mauthner has shown that this can not be the cause, for axial hypermetropia as high as 12 D. could only in this way reduce the acuity from 20/20 to 17/20 when corrected by the accommodation. Moreover, the retinal images can be enlarged to be equal to or greater than in emmetropia by means of correcting glasses. Possibly the explanation is to be found in a disturbance of the development of the percipient apparatus, but anatomical proof of this has not been brought forward.

Every degree of amblyopia is encountered. Why should two individuals affected with the same amount of error possess such different visual acuities? It has seemed to the writer from his cases that the amblyopia is the more pronounced the older the subjects when they first began to wear glasses, as if the badly formed images of the uncorrected eye had failed to awaken the proper function of visual perception.

Very high hypermetropes requiring for their correction an excessive amount of accommodation hold near objects very close to the eyes, simulating myopia. In this way they see better, thanks to the increase in size of the retinal image; the objects, letters, etc., are indistinct but in bringing these close to the eyes, the circles of diffusion increase less rapidly than the images and the subjects have learned besides to further cut off such circles by nipping their lids.

It is frequently stated that such eyes are especially affected with astigmatism, but this has not been my experience. The records of my cases show that astigmatism is, to say the least, no more frequent in high hypermetropia than in other states of the refraction. in fact rather less. Nor is the astigmatism present apt to be particularly high. There are of course many cases of high hypermetropic astigmatism, but the cases I am considering are of much more numerous ones, where the axial defect predominates. It may be added that when a high degree of amblyopia is present low or even moderate astigmatism can only be recognized with certainty by objective methods, of which the shadow test is the best; the cylinder in these cases adds too little to the visual acuity to be certainly recognized by the subjective method.

As the eye is not a single point, but its anteroposterior axis nearly an inch in length, the question from what point ametropia should be counted has been frequently discussed and is not settled even yet. In the lower degrees it is a matter of indifference, but in the higher correct ideas as to the optical constants of such eyes and comparisons between different cases can only be made with exactness when the same reference point is chosen in each. Some writers think it most simple to choose the summit of the cornea as the point from which to measure the punctum remotum. They object to any of the cardinal points of the optical system, because these points do not occupy the same position in all eyes nor in all meridians of the same eye or even for all parts of the same meridian. From what point shall the punctum remotum be computed? The inverse of this distance is the measure of the ametropia. As it is a question of mathematics, it is preferable to select one of the cardinal points and not an anatomical point; for the cardinal points enter into the calculation concerning the dioptric apparatus, but the anatomical points do not. Donders chose to measure the degree of ametropia from the anterior nodal point—obviously because the images being reckoned from the second nodal point the conjugate of the first, their size was readily obtained. The objection to the nodal points are that these are not constant, but change their position during accommodation and in different stages of the refraction. He himself abandoned this point in aphakia. The first principal point is now generally chosen as the point from which to measure the punctum remotum; as a matter of fact in practice we may use this interchangeably with the anterior surface of the cornea without serious error, for the two are separated by only 1.75 mm.

Convergent strabismus is exceptional in high hypermetropia. This has given rise to some surprise on the part of writers. It has been regarded as in contradiction with Donders' theory of the connection between hypermetropia and convergent strabismus. Donders has himself answered this objection by urging that the hyperope, whose error is very considerable, does not even attempt its correction by excessive convergence; besides to correct a hypermetrope of high degree would require such an excessive amount of convergence as can not be maintained even if the accommodation is sufficient to correct the error. The deficiency lies in the power of convergence and not that of accommodation. On the other hand, divergent strabismus is not unfrequently met with. This is probably due to the imperfect development of the extrinsic muscles which share in the general dystrophy. Moreover, amblyopic eyes frequently lapse into divergence.

From recent extensive statistics by Tscherning as to the incidence of refractive anomalies among young persons in Copenhagen, practically no difference existed as regards the higher degree of hypermetropia among the educated and illiterate. What difference there was showed a slightly greater proportion among the illiterate. The same statistics, as usual, showed an enormous preponderance of low and moderate myopia among the educated classes, while the highest degrees of the latter were again equally divided among both.

Analysis of 6,000 individuals refracted by myself, with, of course, almost twice the number of eyes, excluding those that had but one eye, showed, of these 12,000, 222 having more than 4 D. of H. Of these, 16 had 7 D., five 8 D., and one 9 D., four 11 D., and one to be described more fully presently had 16 D. in one eye and 17 D. in the other.

As compared with the incidence of high myopia, the same material showed 304 eyes affected with myopia above 10 D.; these included cases from 10 D. to one of 29 D. The majority, of course, belonged to the inferior limit. Thus the number of cases in this group of 6,000 individuals were not very unequal, 304 of myopia to 222 of hypermetropia.

Hypermetropia of 14, 20 and 24 D. have been reported uncomplicated by serious disturbances of development. Perhaps the case of highest degree ever recorded was one communicated to Donders by Bowman, which required a convex lens of 1⅞ inches for its correction. Calculation gives the anteroposterior axis and the sizes of the images in the uncorrected and corrected eye as follows: anteroposterior axis, 16.908 mm.; size of image linear (10 being normal), 9.587 in the uncorrected eye and 14.499 in the corrected eye. The correcting lens being placed 12 mm. from the anterior principal point, or 10¼ mm. from the summit of the cornea, so that the enlargement of the image produced by the glass, obtained by dividing the size of the image in the corrected eye by that of the uncorrected eye 1.514.

Following is a record of the case of high H. above referred to:

J. J. F., real estate agent, aged 28, born in Ireland. Father's sight poor; is unable to give further particulars. The sight of one sister is like his own. Up to the age of 17 he held near objects very close to the eyes so that he was thought to be near sighted. At that age he was given glasses which were of some assistance. He was told then by his oculist that his eyes had "stopped developing before they had been fully formed."

The external appearance of the eyes is highly suggestive. They are small, deep set, and seem more mobile than normal. The pupils are equal and react to light and convergence. The visual acuity without glasses is ability to see large objects. Measurements of the cornea with the ophthalmometer gave the small radius of 7.1 right and left, corresponding to 49 D. without any astigmatism. The accommodation is 7 D. right and left. The ophthalmoscope showed that the media were clear. The details of the fundus came out clearly with very high convex lenses. The nerve appeared very small, slightly paler than normal, but not enough to warrant the opinion of atrophy, nor was there any other special fundus lesion. The shadow test showed the presence of 16 D. of hypermetropia in the right and 17 D. in the left eye in the visual zone, with moderate positive meridional astigmatism. There was a trace of astigmatism with the rule, but this did not measure as much as 0.50 D. The visual acuity was extremely poor, right and left 5/60, with the correcting glasses +16 and +17 D., respectively.

He was given this correction to wear steadily and reported from time to time that, while the vision was imperfect, the glasses were giving him greater satisfaction than he had heretofore had.

This is the highest degree of hypermetropia the writer has ever seen.

INSTRUMENT WITH WHICH POWDER MAY BE READILY INTRODUCED INTO THE INTERIOR OF THE EYE.

Mark D. Stevenson, M.D.

AKRON, OHIO.

(Illustrated.)

If it is desired to place an antiseptic, e. g., iodoform, iodol, etc., in the anterior portion of the eye, as in beginning panophthalmitis, a powder seems to be the best for the following reasons:

(1) It can be seen how much powder is introduced and the

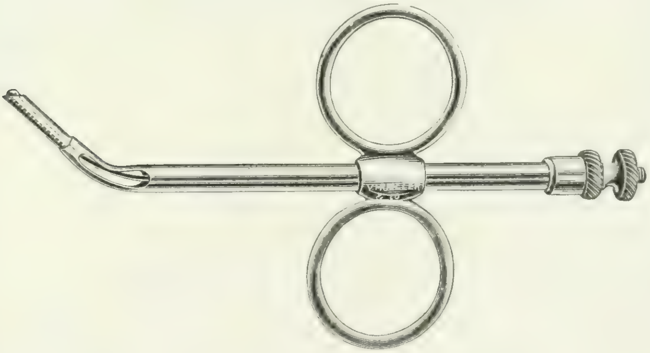
amount present can always be observed. Little or nothing can be known about a fluid except the amount injected, as some or all may escape.

(2) Powders are not washed out of the eye so readily as a fluid. The latter may flow out of the eye in a few minutes with the aqueous and the operator can not ascertain how much remains.

(3) The powders used dissolve slowly, thus continuing their effect for some time.

(4) Discs or pencils are liable to act as foreign bodies and cause irritation of the posterior surface of the cornea, the delicate iris, or the anterior capsule of the lens.

With the instrument here described the powder may be quickly and safely introduced into the anterior chamber. The powder is first lightly packed in the container, and when the instrument is inserted well within the eyeball the powder is expelled by pressing the corrugated end of the piston rod with the thumb while holding the instrument. It is of such length that the powder may be deposited at the most distant portion of the anterior chamber, thus preventing it being washed out so readily. The end of the piston within the container does not fit tightly, so that no air is introduced.



The instrument is curved so that the container may be introduced horizontally across the anterior chamber without injuring the lens or iris and at the same time escape the brow. The container which enters the eye is elliptical in cross-section—quite flat—and its end is shaped so that it can be easily introduced. No difficulty is found in passing it into any fair-sized corneoscleral section. If it is to be introduced through a Saemisch incision, for corneal ulcer, or through any purely corneal section, care should be taken that the incision is sufficiently long—nearly 1 cm.—to give easy entrance, so that no force need be used in its employment and so that the edges of the wound need not be bruised.

Recently I have been employing iodol powder instead of iodoform. It can be more readily and surely sterilized by heat, as it permits of a higher temperature, is slowly soluble, but nearly twice as much so as iodoform, and is odorless and tasteless. It is said not to be as toxic as iodoform.

This instrument may be obtained from V. Mueller & Co., 264 Ogden avenue, Chicago, Ill.

SYPHON EYE COMPRESS.*

O. A. Griffin, M.D.
ANN ARBOR, MICH.

(Illustrated.)

Several years ago, while treating a number of aggravated and prolonged acute inflammatory diseases of the eye, it occurred to me that, instead of employing the ordinary ice bag, which is often irritating to the eye on account of its weight and projecting irregular contents, it would prove more rational to use a tiny water bag and keep its contents at a uniform temperature by syphoning a small stream of water through the bag. In my experiments, small coils of tiny rubber tubing were tried instead of the water bag, but found that this arrangement was not as efficacious as the former.

To make the application more effective by a retention of the applied temperature, a double layer of moistened gauze, about two inches square (indicated in illustration), is first placed over the affected eye and the water bag then put into position and retained in place if desired by means of tape or a string. Single or double bags are used, depending upon whether one or both eyes are affected. To retard the discharge of water and thus prolong the duration of application, and also to produce a distention of the bag, a tiny opening is produced at the end of the discharging tube by inserting a bit of hard rubber tubing which contains a minute passage through which the water escapes. The arrangement is completed by placing two pitchers of like capacity at the proper height to produce a slow and steady flow of water from the upper to the lower vessel. When the upper one is nearly empty, it is only necessary to pinch the tubing or elevate the discharging end and pour the water from the lower into the upper pitcher to keep the apparatus running properly. The stream will flow from thirty to sixty minutes, depending upon the relative height of pitchers and size of opening in discharging tube. By timing the process, the attendant may know exactly when to change the water, and the compress may be applied steadily and indefinitely without disturbing the eye or patient, which is very important, especially when the patient is sleeping and rest is essential.

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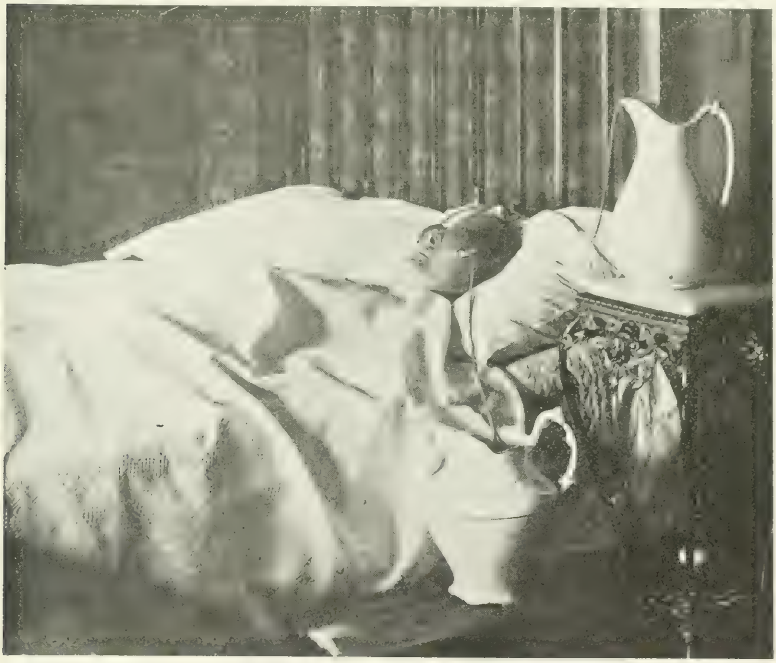
* Read before the American Academy of Ophthalmology and Oto-Laryngology, September, 1906.

If cold compresses are desired, chunks of ice are added to the water, and to retain the rubber tubing in the upper vessel a foot of glass tubing is inserted into the rubber one, which also prevents a collapse of tubing should the ice press upon it. If hot applications are indicated, heated water is used instead and kept at a uniform degree by occasional additions of hot water. In my experience, unless the pain demands a continuous application, the most satisfactory results are secured when the compress is employed intermittently, fifteen or thirty minutes elapsing between applications.



After the apparatus is properly arranged, which requires naught but what might be obtained in any ordinary home, it requires little or no attention and, in my opinion, is the most rational method of employing heat or cold in the treatment of acute inflammatory disorders of the eye, inasmuch as the temperature is uniform, the water bag is light and conforms to the surface beneath, the compress is applied directly to the area desired, the patient is not chilled or drenched by escaping water, and the application may be used indefinitely without disturbing the patient.

The apparatus is made by F. A Hardy & Co., Chicago.

A CASE OF RETINITIS ALBUMINURICA GRAVIDARUM.

IN THE FIRST TWO MONTHS OF PREGNANCY, DEATH OF FETUS, AND MISCARRIAGE AT FOUR MONTHS. COMPLETE RECOVERY.

M. V. Ball, M.D.

WARREN, PA.

Though it is well established that albuminuric retinitis occurring during pregnancy often terminates favorably and especially if labor is induced early, still I believe the following case is of sufficient interest to merit its reporting.

Miss R., aged 15 (much older in appearance), presented herself with the following history: In March, one month previous, she had an acute illness, diagnosed as appendicitis, from which she recovered without an operation. Since then, however, she suffers from severe headaches, has attacks of vomiting and the eyesight has so diminished that she can walk with difficulty and has been obliged to leave school. She has been delayed in menstruation for two months. The attending physician who referred the patient to me, in his letter, said, "There may be a possibility of pregnancy." Patient has an anemic look, has cyanosed lips, puffy face, some edema of the extremities. V. O. D., 6/24. V. O. S., 1/30.

The ophthalmoscope showed a marked hemorrhagic retinitis in both eyes. A specimen of urine examined gave ready reaction for albumin. The patient gave no history previous to a month before that would indicate the cause of the kidney trouble. She was referred back to her physician (a homeopath), with the statement that "the patient was suffering from a severe form of nephritis. There seems to be no outward indication of pregnancy, and retinitis in the pregnant woman is usually a late manifestation. The cessation of menses and vomiting could be due to the kidney disease. The indications are to treat the nephritis, and, unless it is due to pregnancy, the prognosis is very unfavorable." The family physician gave her appropriate treatment, using, in addition to the diet, homeopathic medicine—crotalus 6x and belladonna 3x —and in the course of ten days he reported that the albumin, which had been 6 per cent. in amount, lessened considerably, and a few days later that it had disappeared entirely, that vision was improved and headache and vomiting had stopped.

A vaginal examination made at this time showed a somewhat enlarged uterus. The doctor having left town for a few days, the patient returned to Dr. S., who had been the family physician some time previous. His examination in the latter part of April showed that the urine was "loaded with albumin," but it again disappeared under the use of diuretics, diet and rest.

May 1 she complained of pain in the abdomen, and a few days later had a bloody discharge. An examination developed an impending miscarriage, and on May 15 a "horribly macerated and putrid fetus of about 4 months of age" was taken from her. She denied using any means to rid herself of the product of conception. but, as she denied the fact of pregnancy itself, her word would have no value.

Recovery was uneventful.

She appeared in my office again on June 27, the first time since her first visit in April. She volunteered no history of what had occurred, nor did her physician send any word of explanation. Her complexion had a healthy appearance, she walked unattended, and my surprise can be imagined when I found V. O. D. 6/9, V. O. S. 6/12 and but slight traces left of the severe retinitis I had seen before. A specimen of urine examined by me showed no sign of albumin. Under homatropin with +0.75 Sph. = +0.63 cyl. ax. 90 in both eyes. V. O. D. = 6/6; V. O. S. = 6/6.

Her father, who accompanied her, offered no explanation of the miraculous cure and it was not until a week later that I was given the history as related above.

All the authorities I can command give retinitis as a late manifestation. In this case it must have appeared about the second month. The recovery with so little damage to sight and structure is probably due to the short duration of the illness but the ophthalmoscopic picture present at my first examination, gave every evidence of a late manifestation and equalled in intensity that seen a few weeks before death.

SPONTANEOUS DISLOCATION OF BOTH CRYSTALLINE LENSES IN TWO MEMBERS OF THE SAME FAMILY.*

ALVIN A. HUBBELL, M.D., PH.D.

BUFFALO, N. Y.

Heredity is well known to be an etiologic factor of more or less influence in many diseases of the eye, but so far as my observation and research go this has not appeared to be the case in dislocation of the crystalline lens. I therefore submit the following cases as showing the possibility of such influence in this disease:

CASE 1.—In 1886, Mrs. J. D., 38 years of age, consulted me for loss of vision of her left eye. The vision of this eye had been failing for several months, and during the last few weeks it had become very dim, but without pain or soreness. The vision of the right eye was normal, and there was no refractive error. Both eyes presented a normal appearance, by inspection, except that the left anterior chamber was very deep and the iris was tremulous on ocular movements. Both irides were of the same color, both pupils were of the same size and reacted equally to light. On dilating the pupils with homatropin, the ophthalmoscope showed the right fundus normal in every respect and the media clear. The refraction of this eye was nearly emmetropic.

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* Read before the American Academy of Ophthalmology and Oto-Laryngology, September, 1906.

The left eye was aphakic in appearance and also in refraction. The crystalline lens was found in the lower part of the vitreous humor behind the ciliary body, and seemed to be fixed. The posterior part of the fundus was seen distinctly with the suitable lens of the ophthalmoscope, and was normal. With a + 9.00 D. Sph. glass the vision of this eye was 20/30, Snellen. No glass was ordered for either eye, the patient being advised to depend on her right eye alone.

There had been no injury of any kind to the left eye so far as the patient knew, and the patient's general health was good. There was no history or evidence of syphilis, and there had been no disease or inflammation of the eye previous to the present condition.

About six months after the above consultation, the patient returned to me with the complaint that the vision of the right eye had just begun to trouble her. There had been no injury. On examination I found that the vision had become much impaired, and that at certain times and in certain positions of the eye she had diplopia with it. The anterior chamber had become abnormally deep, but the iris did not appear to be tremulous. After dilating the pupil I found the crystalline lens partially dislocated directly downward into the vitreous humor, the upper margin of the lens being just below the visual axis of the eye. The lens was nearly, if not entirely, transparent. With a + 9.00 D. Sph. glass, the vision was raised to 20/30. I ordered at this time a + 9.00 D. Sph. glass for each eye, which gave clear binocular vision of a little better than 20/30. I did not order reading glasses at this time. A few weeks later I found that the right lens had sunk to the bottom of the vitreous humor, like that of the left eye, and that it appeared to be fixed. The iris was tremulous. There were no symptoms of irritation in either eye and the patient was perfectly comfortable. I now ordered R. and L. + 12.00 D. Sph. glasses for near use, with which she read Jaeger No. 4 at twelve inches.

With these glasses vision continued about the same for several years. There was no change in the position of the crystalline lenses, and no inflammatory reaction occurred. I have not seen the patient in eight or ten years, but a recent letter says: "She does not see well. The sight of one eye is gone and the other impaired." This is another illustration of the undoubted injurious effect of a crystalline lens in the bottom of the vitreous humor.

Case 2.—Mrs. L. B., sister of the above, first consulted me in September, 1890. She was then 39 years old and had had trouble with her right eye for four years. She had always been in good health, had no history of syphilis or other previous disease, or of injury of either eye. During these four years she had been treated, among several, by Dr. Phillips of Cleveland, Ohio.

On examination I found that the right eye had been inflamed and painful more or less during the past year, and was still red and tender. The cornea was somewhat hazy and the crystalline lens, which was opaque, was dislocated into the anterior chamber. The tension of the eyeball was considerably increased, and vision was reduced to barely perception of light.

The left eye had had a wide iridectomy performed upward, by Dr. Phillips, of Cleveland, Ohio, about six months before. The lens of this eye was now cataractous, and was partially dislocated downward and outward. The vision through the coloboma above the lens was sufficient to enable her to go about. There had been no inflammation of this eye; until a year previously its vision had been "good."

The patient would not consent to any attempt at removal or reduction of the right lens, as I was unable to promise a successful result. But she was willing that I should "couch" the left lens. A few days afterward, therefore, I depressed this lens by passing a cataract needle through the outer margin of the cornea onto the anterior face of the upper part of the lens and gently pushing it down to the lower part of the vitreous humor. It remained there, but the operation was followed by a slight reaction, which subsided in a few days.

On October 9, the eye was quiet and with a + 12.00 D. Sph. glass, she had a vision of 3/9, Snellen. With + 16.00 D. Sph., she could read Jaeger No. 4 slowly at seven inches. I ordered corresponding glasses. On June 20, 1892, the vision of this eye with the same glasses was 5/9, nearly, and Jaeger No. 4.

I have not seen the patient since, but a letter recently dictated by her says: "My entire vision failed me about seven years ago. My eye does not hurt me." She also states that the other (right) eye had been enucleated.

The fact that these two sisters are both afflicted with spontaneous dislocation of both crystalline lenses is very suggestive of some hereditary condition existing, by which those peculiar degenerative changes of the suspensary ligament have taken place which are necessary to this rare form of lenticular luxation. I have not had the opportunity of tracing the family history, but that such a hereditary influence is present is rendered still more probable by the following suggestive statement in the letter above referred to, which would indicate the possibility of other cases of the kind existing in this family: "In three generations there are thirteen blind, and others with impaired vision." Mrs. B. thinks this state of affairs may be due to "relatives intermarrying."

BLACK CATARACT.

S. W. Smith, M.D.
DENISON, TEXAS.

It having been my good fortune to remove a black cataract recently, the first I ever encountered in an experience of thirty years, my curiosity was aroused to investigate the subject. A search through such literature as I had at my command or could learn of on the subject was very unsatisfactory. I learned, however, that very little was known of the growth, and that there were many others as ignorant as I, which was somewhat consoling, for misery likes company. Through Dr. Fox, of Philadelphia, I learned that Dr. Swan M. Burnett, of Washington, D. C., had removed a black cataract which he had submitted to microscopical and chemical analyses. In reply to a letter of inquiry Dr. Burnett, at the expense of much time, sent me the result of his investigations. His kindly letter to me was probably among the last that he ever wrote, for death suddenly ended his brilliant and useful life January 18 last, depriving us of a scholarly physician and true ornament to the profession. Dr. Burnett said "that immediately after the cataract was extracted he placed it in a neutral fluid and took it to the Army Medical Museum, where Dr. Gray examined it under the microscope. He found the lens structure perfectly uniform, neither by transmitted nor reflected light could any irregularity in density be made out, nor were there any pigment granules under the highest power that could be applied. He then took it to the chemical laboratory of the National Museum where Professor Clark examined it spectroscopically, and Professor Clark assured him that hematine could be excluded, for there was an entire absence of blood absorption bands."

Dr. Burnett, continuing, says, "in the index catalogue of the Surgeon General's office there are fifty-one titles under black cataract, not including text-books, and from a consultation of a majority of these articles and the most prominent treatise on the eye, I am satisfied that two very distinct forms of lens affections have been described under the term 'cataracta nigra.' In one there is undoubted infiltration of pigment into the lens, probably originating from hemorrhage in the vicinity of the lens, which should be called 'cataracta pigmentosa.' In the other, the true 'cataracta nigra,' there is no infiltration of pigment, but simply a sclerosing or hardening of the whole lens; in other words, the lens becoming all hardened nucleus. In proportion as the hardening process is even and smooth, leaving the lens fiber of the same density throughout, in that proportion will the lens reflect less and less light, and the pupil offer less and less the usual white appearance, characteristic of the common form of disease, and show fewer striæ and irregularities under oblique illumination."

I think there can be no doubt that such cataracts are longer in forming than others and consequently we should expect to find them more frequently in persons well advanced in years. In operating the fact must be borne in mind that the lens is large and the incision must be correspondingly ample.

Assuming Dr. Burnett's classification to be correct, my specimen would undoubtedly fall under the head of true black cataract. Aside, however, from its color there are so many interesting circircumstances connected with its growth, development and removal, that I deem them worthy of record. The cataract was extracted from Mrs. E. S., a native of Ireland, 71 years of age, well preserved and active, the mother of a large family. During the fall of 1895 she stepped into the back yard during a thunder storm and was momentarily stunned by a flash of lightning from which she soon seemingly recovered, but that night she was stricken with hemiplegia, involving the right side. The remainder of the fall and succeeding winter she was confined to the bed helpless. With the coming of spring she gradually recovered the use of her limbs, and at the present writing there is not the slightest indication that she ever had paralysis save in the eye. With the disappearance of the paralysis she noticed that the vision in the right eye was growing dim, which grew worse as the years passed. Finally she consulted her physician, who pronounced her trouble cataract, and recommended the use of 'Cineraria Maritima,' a much vaunted remedy for the absorption of cataract, of which she used many bottles and found it worthless. After going the rounds consulting four or five oculists in as many different localities, she came to me for a change of glasses. I found a high degree of myopia in left eye, and vision for large objects only in right eye. To determine the trouble I as usual resorted to the ophthalmoscope, but by no combination of lenses could I get more than a black pupil with a faintly luminous reflex like a faint light shining through a smudge of black coal smoke. Not until I used oblique illumination supplemented by the old catoptric test could I determine the nature of the trouble. From this time on I watched the gradual ripening with much interest, and about two years ago determined the growth was ready for removal. But having in mind the preceding hemiplegia and lengthened period of ripening my prognosis was necessarily very guarded and the patient's consent consequently hard to gain. Finally after two years of patient waiting consent was granted, and Oct. 26, 1905, assisted by my associate, Dr. Blassingame, I extracted the cataract by the simple method through an incision involving nearly one-half of the cornea. The choice of method was most fortunate, for we found the vitreous more fluid than usual and the cataract so insecure in its fastenings that the slightest touch with cystotome nearly displaced it into the vitreous. An absolutely clear pupil was secured, but when the usual test for vision was made we found the patient could only see objects held on the temporal side. The healing was uneventful until the third night when the bandage causing some irritation she removed it, and not being able to replace it she lay the remainder of the night with nothing over the eye except her handkerchief held in her hand. On dressing the eye the following morning the wound was found torn open at its center and the iris protruding. Fearing infection the eye was thoroughly irrigated with an antiseptic solution, the iris replaced, the edges of the wound cauterized and eserin instilled. We left, hoping for the best but fearing the worst. Strange to relate, no untoward results followed, and the eye went on to slow but complete recovery. As soon as it was safe the fundus was examined and progressive optic atrophy already complete as to the temporal side was found; in other respects the fundus was normal, choroiditis, which we naturally expected to find because of the high degree of myopia which existed previous to the formation of the cataract, being absent. When the very fragile capsule was opened a semifluid, grayish cortical was found covering like a thin veneer a large black nucleus. The whole being placed in a 50 per cent. solution of alcohol for preservation, we noticed the next morning that almost all the cortical had been dissolved, leaving the nucleus as you see it in the gelatin, nearly the same diameter as the dram vial, 12 mm.

Two months after the operation the patient could read small print with a minus 10 sphere in nasal field, nothing in temporal with any correction. The fundus was visible only with high power minus lens in the ophthalmoscope. The usual correction in cataract cases being from 8 to 12 plus.

To summarize the unique features connected with this case we have, first, the probability that the cataract was the outcome of paralysis produced by a stroke of lightning from which the patient wholly recovered save the eye, with no return of the condition.

Second, the color of the lens, its size and density, and the small quantity of cortical which was soluble in dilute alcohol.

Third, the total loss of sight in the temporal side, that part of the eye supplied by fibers of the optic nerve originating in the right brain, the great antero-posterior diameter of the eye, the acceptance of high power concave sphere, and the progressive atrophy.

Fourth, the presence in the left eye of an incipient brown cataract.

Since writing this paper I have seen a brown cataract in a patient aged 75, making three colored cataracts within a period of nine months.

THE TREATMENT OF ACUTE SUPPURATIVE DACRYOCYSTITIS.*

LEE MASTEN FRANCIS, M.D.

Ophthalmic Surgeon Emergency Hospital; Assistant Ophthalmic Surgeon Buffalo General and Erie County Hospitals; Instructor in Ophthalmology, University of Buffalo.

BUFFALO, N. Y.

With a full realization of the vast amount that has been written on the subject of acute suppurative dacryocystitis, I venture to take up the topic, believing that any new method of treatment that may bring success in handling some of these cases will interest the members of this academy.

Without going into a lengthy consideration of the underlying pathology of dacryocystitis, suffice it to say that most writers and observers agree that stricture of the lacrimal duct is the causal factor in the majority of cases. The stricture may be cicatricial, or the result of an agglutination of the canal walls due to inflammatory swelling of the erectile tissue lining it, or as Fuchs suggests, in the new born, a plug of epithelial débris. Given a stricture, infection and suppuration are natural and expected sequences.

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* Read before the American Academy of Ophthalmology and Oto-Laryngology, September, 1906.

All treatment measures, however varied and different, have for their common object, the rapid suppression of the pus and dilatation of the stricture. Successful treatment depends upon the rapidity with which these two ends may be brought about. It is the treatment of the early pus stage to which I wish particularly to call your attention. By a series of experiments upon normal subjects I found that antiseptics could be driven into the lacrimal sac by means of inunction through the overlying skin surface. Ichthyol, unguentum Credé, unguentum hydrargyri, iodine and several others were tried. Without exception the secretion of the nostril draining the side massaged showed the presence of the antiseptic employed, in less than half an hour. These results led to the employment of inunctions in infected cases. The method of treatment is as follows: If the puncta are not patent, they are freely dilated so that upward massage on the sac will readily empty it of pus. In none of my cases has it been necessary to slit the canaliculus in order to insure thorough expression. In most instances I think it is a needless proceeding, and in its after effects, sometimes harmful. The patient is shown how to keep the sac well drained of pus by frequent gentle upward stroking. Constant application of the ice bag is ordered and an inunction every two hours thoroughly massaged into the skin overlying the lacrimal sac. In selecting an inunction, the best results have been obtained from unguentum hydrargyri 50 per cent. and unguentum Credé. It has been my uniform experience that the quantity of pus commences to lessen rapidly and has decreased to a minimum or disappeared in from three to five days.

I doubt very much if it is sound surgical practice to irritate, if not usually wound, a delicate, small canal already inflamed and swollen and enclosed in unyielding bone. So the probe is not used until pus has disappeared or nearly so, and then only with the greatest care and with nothing but the most gentle pressure. At the first probing a No. 3 or 4 Theobold is employed, having first injected the sac with a solution of adrenalin and cocain in order to contract the erectile tissue. After persisting with gentle pressure for sometimes as long as 30 minutes, the tissues gradually relax, permitting the probe to go through, without lacerating the canal and without pain to the patient. After allowing the probe to remain in situ for some time, it is withdrawn. The sac and canal are then freely irrigated with potassium permanganate solution 1/5,000. Permanganate is preferred to astringents. After irrigation the sac is filled with 25 per cent. argyrol solution which is allowed to remain. Subsequent probings are continued with decreasing frequency. Inasmuch as I do not slit the canaliculus probes larger than Theobold 9 or 10 are not used.

I regret that I can not furnish you with complete clinical records. It seems the irony of fate that in my clinical and private practice few of these cases have appeared during the past ten months. My observation is therefore limited to 23 cases. All of these made rapid and satisfactory recoveries under the treatment indicated above, with but one exception. That was a case that came to my dispensary clinic at the Emergency Hospital with a well developed lacrimal abcess about to rupture. This was drained through the skin. The incision closed spontaneously within four days, when the same treatment as in the other cases was instituted.

Although nasal disease and other predisposing causes, both local and systemic, have not been mentioned, especially the latter must demand the surgeon's attention. In conclusion, I wish to lay emphasis on the fact that this treatment is not regarded as the best adapted to *all cases,* for I am sensible that there are instances where the more radical measures in vogue may give better results. On the other hand I am not so sure that we have been too conservative in the handling of these cases in the past. The simplicity of the inunction recommends it. It may be carried out by the patient, making home treatment possible where otherwise there might be a lack of it. It is manifestly harmless. It is not offered as a substitute in any way for more skilled measures that may be undertaken by the surgeon in the office. The results thus far have been successful enough that I offer it to you for what it is worth.

482 Delaware Avenue.

THE PUNCTATE FORMS OF RETINITIS.

H. Gradle, M.D.

CHICAGO.

This paper is based on the study of eight personal observations, five cases communicated kindly by other Chicago physicians, and all the cases recorded in literature.[1]

1. Since the publication of Fuchs on this subject in 1897 and 1898 the term retinitis punctata has been mostly applied to a disease closely resembling retinitis pigmentosa. The patients complain since early life of night blindness, sometimes with normal, sometimes with moderately reduced sight. The field may be slightly restricted. The disease remains stationary for years or at least is not rapidly progressive. There is often consanguinity of the parents. The fundus

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[1] I am indebted to Drs. Faith, Wescott and Hotz for these notes

in both eyes is studded with minute white and yellowish-white specks not reaching to the extreme periphery and leaving the central region nearly free, especially in cases with good sight. Beyond the zone of white dots pigment figures are sometimes seen, in some in the form characteristic of retinitis pigmentosa, in others in a less typical manner. In advanced instances slight atrophy of the nerve has been seen. The author adds a personal observation to the scant number of cases reported.

Entirely different from the clinical picture of this rare disease are most of the cases published within the first few years after Mooren's first account in 1882. According to the author's observation cases of this kind are not so very rare. At least two groups can be distinguished, perhaps with transition forms.

2. In that form of the disease which is most easily overlooked the patients, usually young people, may have normal sight but complain of asthenopia or photophobia, or their sight may be slightly weakened, especially in the eye showing the more extensive fundus changes. No scotoma or other visual disturbances. The ophthalmoscope shows very faint white dots in both eyes, mainly around the margin of the disc, sometimes irregularly encircling the macular region. There may be not over one-half dozen, especially in the eye least affected, up to many dozens in more pronounced cases. No other lesion is found at any time. The white dots disappear in the course of several months or possibly several years, usually leaving no residue. In one of the author's cases in which slightly dim sight had been noticed in one eye for many months, the subjective and objective improvement began so promptly under the use of large doses of iodid, that there was no reason to question its decisive influence. (Positive absence of syphilis.)

3. Different from these insidious and easily overlooked cases we find another group with much more pronounced disturbances. In most of them the dimness began acutely (usually in both eyes) often as a central scotoma, sometimes of a high degree. Generally the disease shows a tendency to recover spontaneously in the course of weeks or months, although some exceptions have been noted with unfavorable termination. The retinal dots which give the disease its characteristic name are not always present at the start, and they may persist unchanged at a time when sight is again improving. Hence the occurrence of the characteristic white dots in the retina is probably *not* the essential lesion. In this type of the disease the dots are easily seen and fairly numerous throughout the central area of the fundus. In most of the cases they were seen to disappear ultimately, but not in all. In one characteristic case (Dr.

Faith's) the disease began as typical optic-neuritis. In several others there was blurring of the disc suggestive of neuritic disturbance. The view, that in the cases showing no visible change in the nerve, the essential lesion is a *retro-bulbar neuritis,* is supported by the frequent observation of a central scotoma not explained by the retinal appearances, and by the occasional optic atrophy found in late unfavorable cases. In many instances, especially those published by former authors, retinal haze, exudates, and hemorrhage have been observed in the beginning of the disease. But these retinal complications are not a constant feature. In two observations of Dr. Hotz, choroidal involvement was probable, one time by reason of transient vitreous opacities, in the second by reason of slight disturbances of pigmentation of the fundus remaining after recovery. In one of the author's observations, too, an eye lost sight with the development of vitreous opacities.

Various incomplete observations of the author's point to the existence of transition forms between the types 2 and 3, viz.: Cases with gradual development, with only a limited number of white dots, and absolutely no other visible complications, yet with decided disturbance of sight. Etiologically nothing can be ascertained about the origin of most of the cases. Once the disease occurred in a very anemic girl. Twice it was observed in patients with nephritis. Some of the published reports suggest a connection with either nephritis or vascular disease.

The author holds the view that in the last described type (3) of retinitis punctata the retinal dots, although the most striking feature, are not the essential lesion, but that the latter is to be sought in the optic nerve behind the eye. In most instances the distribution and density of the white dots does not account for the degree of visual disturbance, especially the central scotoma. There are indeed cases (several personal observations) in which the spots are very few in number, although coarser in these instances, but with pronounced failure of sight. Vision sometimes begins to fail before the white spots appeared, apparently in consequence of a gross neuro-retinitis, while the dots may persist when sight has almost become normal. All these reasons and especially the occasional well defined central scotoma, suggest that the disease is an inflammation of the nerve behind the eyeball, evidently different in course as well as etiologically from the ordinary form of retrobulbar neuritis. In several instances the influence of large doses of iodid upon the disease was very pronounced. The full report, with records of cases, will be found in the Transactions of the International Medical Congress at Lisbon, 1906.

100 State Street.

DIONIN IN DISEASES OF THE EYE.

R. W. Rutherford, M.B. Tor.

CHATHAM, ONTARIO, CANADA.

Dionin or Ethyl-Morphin Hydrochlorid, since its introduction a few years ago by Darier of Paris, has become an important part of the oculists' armamentarium. It is a powerful lymphagogue, producing marked chemosis of the ocular conjunctiva, and to this property its usefulness is due.

I have used it in my private practice for the past eighteen months, and have obtained very excellent results. I will now record some eye conditions that are amendable to its therapeutic action.

Pain.—Every practitioner is well aware of the severity of the pain met with in some cases of iritis, irido-cyclitis, corneitis and glaucoma; and before dionin was heard of, I may venture to say that many of them have found it necessary to give morphin hypodermically, to allow the patient a good night's rest. Not so much now. I am of the opinion that dionin in 2 to 5 per cent. solution or as an ointment of the same strength, if used properly and at close enough intervals, will relieve the severest of eye pain. Some may think that cocain is just as effective but it is not. Furthermore, it dilates the pupil and increases the intra-ocular tension and is thus contraindicated in acute glaucoma. The relief afforded the patient by dionin is also longer in duration than that got from other ocular analgesics, such as cocain and holocain.

Corneitis or Ulcer.—In this condition, by means of its powerful lymphagogic properties, dionin combined with atropin relieves pain and hastens the absorption of the corneal infiltrate. After the ulcer is entirely healed, I have the patient insert into the lower conjunctival cul-de-sac a little dionin ointment, and then have him close his eye-lids and massage the cornea by means of his fingers. I employ at the start, ointment 2 per cent. and gradually work up to 5 per cent. Let me emphasize here that the more recent the opacity, the better the result.

Iritis and Irido-cyclitis.—In the acute form of these diseases dionin combined with atropin, besides relieving the pain, assists the latter drug in its dilatation of the pupil; a feature most desirable. In old cases of iritis, where posterior synechiæ are present, and there is also a plastic exudate over the pupillary area, there is no adjuvant to atropin like dionin. It is also very useful in post-operative iritis and irido-cyclitis.

Acute Glaucoma.—Dionin is said to lessen the intra-ocular tension of the acute glaucoma. My experience in cases of acute primary glaucoma has been very limited, but combined with atropin, I have used it with splendid results in cases of secondary glaucoma due to synechiæ.

In conclusion, from my experience, on account of its usefulness in iritis, irido-cyclitis, corneitis and opacities of the cornea, I think that dionin has already come to stay as one of our most valuable and useful ocular therapies.

PUNCTATE OR HYALINE OPACITIES OF THE POSTERIOR LENS CAPSULE.*

W. F. Mittendorf, M.D.

NEW YORK.

Under the name of cataracta polaris posterior spuria, or false posterior polar cataracts, we know certain opacities of the posterior capsule of the lens, which are usually found in the region a little internal of the posterior pole of the lens or, more properly speaking, in the region of the attachment of the hyaline artery during the growth of the eye in intrauterine life. These opacities vary in size and, according to the remaining portion of the hyaline artery, may be of the size of a hempseed, or only a small dot may indicate where the attachment of this artery was. Some of the larger cataracts of this kind may even show remains of previous vascularity. Cases of this kind have been reported many years before the discovery of the ophthalmoscope.

In the great majority of cases, however, these opacities are much smaller and vary from the size of a poppyseed to a point resembling the prick of a pin. In some cases these aggregations appear to be only faintly attached to the posterior lens capsule and have a certain amount of mobility which is easily discovered on having the patient move the eyeball. However, the great majority appear to be on the posterior surface of the lens capsule and move, like all such opacities, in an opposite direction to the movement of the eyeball. These cataracts, if we may call these little dot-like opacities by such a formidable name, differ very much from the true posterior polar cataracts which we are all familiar with and which may be likewise congenital, the result of chorioidal disease during intrauterine life, but which in the great majority develop later in life as the result of disturbed nutrition due to and accompanying certain diseased condition of the eye, of which a myopic chorioiditis is perhaps the most frequent one. Opacities of the kind of which I wish to call your attention to to-day are not located at the center of the posterior lens capsule, but to the inner or nasal side of it. They are much smaller and more rounded in shape, occur, as a rule, in healthy eyes; they show no tendency to grow larger, and they do not affect the acuity of vision of such eyes. They are so small that they can not be seen by the naked eye nor by oblique illumination, and only the ophthalmoscope reveals their presence, and consequently we do not find any mention of them by earlier writers, although more marked opacities of this kind spreading on the posterior capsule have been described by von Ammon as early as 1832. On account of their small size and the fact that they are at one side of the lens, they are apt to be overlooked, which, perhaps, is no misfortune, as they have no pathological significance. In fact, nearly all of our text-books take very little notice of them, the majority do not even mention them, but they are very puzzling to the beginner in the use of the ophthalmoscope. They are most frequently discovered in refraction work, as their presence is more easily overlooked in inflamed eyes on account of the sensitiveness of such eyes and the importance of other symptoms accompanying such conditions.

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* Read before the American Academy of Ophthalmology and Oto-Laryngology, September, 1906.

What I wish to call your attention to is the great frequency they are met with. In 1892 I reported at the meeting of the American Ophthalmological Society the results of my former investigations, which showed that they were met with in more than 1 per cent. of all persons examined. As it is apt to be in such investigations, we sometimes do not see a single case in several weeks, only to meet with three or four of them in a single morning.

Subjectively, these spots cause no annoyance whatever, as they do not interfere with normal vision and apparently do not give rise to the annoying muscæ volitantes, as patients have complained to me of them as appearing as often in the eye perfectly clear as in the one with the hyaline spot. I have never seen these spots lead to pathological changes, even after many years of observation of the same patient, and they are met with in adults as frequently as in children. I have seen them in very young children as well as in very old persons. I have also seen them in cases of beginning senile cataract where the senile changes were not connected with them in any shape or manner. Nor does the refractive condition of the eye nor the sex have any relation to them, but in some of the imperfectly developed eyes they are apt to be met with a little more frequently. However, the number of such eyes examined has been too small to lay much stress upon this. In some cases I have had reason to believe that in the course of a number of years that they had been under observation they became a little smaller and sometimes seemed to disappear in a few isolated cases. These cases all occurred in younger persons and perhaps a process of absorption took place here.

Another fact which the statistics below confirm is the much greater frequency with which they are met with in the right eye. I have tried to explain this by the assertion that, the circulation being more active on the left side, it being nearer to the heart, the process of retrogressive change in the hyaline artery and the canal of Cloquet is apt to be more complete here, whereas on the right side this process is perhaps more easily disturbed and the point of attachment of this vessel and sometimes certain portions of its canal—it having no accompanying vein—are not completely obliterated and remain as small opacities on the posterior capsule of the lens or sometimes a little behind it, but still remaining attached to it.

Several cases of remaining hyaline artery which I had occasion to observe confirmed my conviction that these spots always indicate the point of attachment of this vessel to the posterior lens surface. The fact that they are not found anywhere else on the lens, especially not in the center of the lens, is explained by the fact that the hyaline artery reaches the lens always more toward its nasal border.

I will now, briefly, give you the results of 10,000 patients, or 20,000 eyes, examined by me personally for this condition in my private practice.

There were found altogether 145 eyes with this condition—in the right eye, 108 cases; in the left eye, 24 cases; in both eyes at the same time, 13 cases; sessile or as opacities of the capsule, 137 cases; floating but connected with the lens capsule, 8 cases. Of these 145 cases, 4 occurred in abnormal eyes, and in 20 cases the eye with the hyaline spot was decidedly the better eye, and in only 12 cases was this eye much poorer than the other eye, and then the defect of vision was due to other causes.

Of the total number, 22 occurred in hypermetropic eyes, 20 occurred in myopic eyes, 22 occurred in presbyopic eyes, 68 were astigmatic, and in 13 cases the refraction was either emmetropic or not mentioned on account of other more important conditions.

In regard to sex, 83 were found in females, 56 were found in males, 6 in very small children. The greater frequency of the females is easily explained by the fact that they were in the majority of my patients.

GIFFORD'S LID SYMPTOMS IN GRAVES' DISEASE.

Geo. L. Strader, M.D.

CHEYENNE, WYO.

A few days after reading Dr. Gifford's article, "A New Eye Symptom in Graves' Disease," printed in the June Record, I found in a case of mine all of the symptoms mentioned by him. Miss T., age 21, first came to me in August, 1904. For some time eyes have been hurting, get red and water a great deal. S. P. V., 20/20 each eye. Convergence fair. Moderate congestion of palpebral and ocular conjunctiva. Under homatropin, refraction showed, both eyes, —0.75 ⌒‿ +0.75° × 85 and 95. Otherwise eyes and lids normal throughout. Glasses were ordered and a collyrium of zinc chlorid, 1 gr. to the oz., to be used once a day. Physically she had never been strong, and for a long time had been bothered with an obstinate pustular facial acne. At this time I had under treatment her brother for laryngeal tuberculosis. He died in December. 1904. I have had her under my care at intervals since then, but with indifferent results, which I attributed to her general physical condition. May, this year, she came to me because her upper lids had become swollen and eyes were watering worse than usual. Said she had been taking some patent medicine for her facial acne and thought the medicine might have caused the puffiness of the eye lids. As I could find no other reason, I suspected she was right in her surmise, and advised her to throw the medicine away and consult her family physician. She did as advised, and two or three weeks later the physician told me that he believed her eyes were exophthalmic. She came to see me a few days later with the following symptoms present: Well-marked exophthalmus, pulse 120, extremely nervous and easily exhausted. In right eye v. Graefe's sign present, Dalrymple's slightly marked; fulness between eyebrow and lid. Eversion of upper lid very difficult. Conjunctiva hyperemic, eyes watery; worse at night. Most of the symptoms present in left eye, but not well marked.

During the more than two years she has been under my care I had turned her lids many times, but never before had the slightest difficulty in doing so. She has now been east for several weeks, and recently at my request visited Dr. Gifford. He writes me that her condition is practically the same as when I last saw her.

Addendum.—Through the kindness of Dr. Strader I was enabled to see the patient above referred to. I found the lid-eversion symptom well marked, especially in the right eye; but what interested me especially was the fact that in her case the swelling of the skin between the lid and eyebrow, to which I referred in my article, was the very first thing to suggest that she had anything wrong. Her brother noticed this and told her that she ought to have something done. Another interesting feature of her case was the fact that the excessive lacrimation was confined to the right eye and troubled her *only at night when she was lying in bed.* This effectually disposes of the theory that this lacrimation symptom is due to the exposure of the globe either from the protrusion or from the infrequent winking. H. GIFFORD.

CATARACT EXTRACTION, WITH PRELIMINARY CAPSULOTOMY.*

HOMER E. SMITH, M.D.
NORWICH, N. Y.

In the extraction of cataract it is admitted that equal in importance to a corneal section of sufficient size as shall permit of the easy deliverance of the lens is an efficient capsulotomy, equally is it admitted that the latter is the most difficult and dangerous step in the operation. True is it also that the smaller the section consistent with the object in view the better are the patient's chances against infection and for an uninterrupted healing of the wound. To know in advance the size of the section required and to make certain an efficient capsulotomy, with a maximum of precision and a minimum of risk, the writer has used for some years a method which has been satisfactory in results, and to describe which is the reason for this paper. So far as I am aware, no one in this country adopts this procedure, but no claim is made for originality, for somewhere in my reading was obtained a hint from which has been developed the present technique. To those of you who live where hospital facilities and the services of trained ophthalmic nurses are accompaniments of every extraction the preliminary details for preparation of the patient and of asepsis are matters of little personal concern. Of such I beg the indulgence for what in the following may seem supererogatory, but it is offered without excuse to the operator who, removed from such facilities, must work out for himself all the preliminary details and personally supervise them. In the first place, my cataract extractions are done in the office. I am prepared for criticism on this point and am free to confess that it is not the ideal method, but where one contrasts the makeshifts of improvised operating tables, kitchen-stove sterilizers, insufficient illumination, etc., outside, with the perfect arrangements within a well-equipped office, one will decide that the patient's chances are better under the latter conditions. More than this, there is a psychic element in the case—unfamiliar surroundings distract one from that concentration of attention and alertness of mind so essential to smooth operating. If possible cataract cases are kept under observation for a week preceding the operation. It is assumed that systemic diseases and chronic conditions of the lacrimal apparatus and conjunctiva requiring longer treatment are excluded. Also it is understood that the method to be described is applicable only to such cases as one would intelligently select for the simple extraction and is not the operation of choice where the iris lacks the lustrous appearance of health, where the lens is amber colored or dark gray, and when the iris is rigid with little dilating ability to the pupil. Without going into the vexed question of the merits of the simple as compared with the combined extraction as a routine procedure, it is my opinion that 95 per cent. of all cases are suitable to the former operations, and that the chief objections to this, namely, the difficulties of an efficient capsulotomy, the effective removal of fragments of cortex and the easy deliverance of the lens through the pupil are met by the method here proposed. As to the better cosmetic and visual results, there can be little question. Since Lister's discovery, "antisepsis is everything" has become a familiar saying, and now few other preparations are made than those which will ensure asepsis and antisepsis. If, perchance, notwithstanding these precautions, infection occurred, it was said that it was due to faulty antisepsis, allowing the wound to become infected by pathogenic germs from the outside. Most operators occupy themselves with exogenous invasion alone, paying little attention to sources of endogenous infection. I am of the opinion that the latter play an important part in the healing of operative wounds, so during the week of observation the patients are kept on a non-nitrogenous diet, a daily warm bath is ordered and the bowels kept flushed by a morning saline draught. The nostrils are kept clean by the use of mild alkaline washes, and to the conjunctiva is applied thrice daily a 5 per cent. solution of argyrol. On the afternoon of the day preceding operation the patient, if a man, is shaved, his hair cut close and given a shampoo. A woman has her hair washed. The cilia are cut close to the lid margin, the brow is shaved, the skin of the lids, cheek and brow is scrubbed with soap and hot sterile water, washed with ether, again with water and lastly with a 1-2000 bichlorid solution. The pupil is dilated with a 1 per cent. solution of homatropin, the conjunctival sac is flushed with a 1-1000 alphozone solution, filled with sterilized sublamine vaseline, 1-1000, and a dry dressing of bichlorid gauze applied, held in place by a sterilized bandage. This is kept in place over night. In this connection it should be emphasized that no degree of chemic antiseptic can make bungling surgery aseptic, and it is much better to have the cataract knife superlatively sharp than superlatively clean. In the morning the dressings are removed, the technique of asepsis again carried out and the eye cocainized. A speculum is introduced and the fixation forceps applied. With a small Knapp's knife-needle a puncture is made through the upper part of the cornea, the blade carried down to the lower margin of the dilated pupil and then brought to its upper border, making an incision not only through the capsule, but partly into the lens substance itself. A similar cut, but at right angles to this, is then made in the mid-pupillary space and the knife withdrawn. The speculum and fixation forceps are then removed, the eye flushed with an antiseptic and the bandage reapplied. It is here that most valuable information is obtained which will guide the operator in the size of the corneal section he will later make. If the cut in the capsule is practically invisible, then is it known that a large nucleus is present and the usual section of the upper two-fifths of the cornea will be required for the easy exit of the lens. If there occurs an escape of semi-gelatinous lens matter, then a section of one-third will suffice, while if there issues a milky liquid then is it known that the cataract is hypermature and the section may be made with the angular keratome. Therefore, no larger a section is made than is necessary and a minimum of risk to the healing process assured. There is a period of waiting between the capsulotomy and the extraction, because there is usually a sufficient loss of aqueous to render the eye soft and a proper corneal section difficult. I am of the opinion. however, that this loss of time is really a gain in results, for it seems that even in four hours there is sufficient imbibition of aqueous to facilitate the separation between cortex and capsule and to make easier the deliverance of the lens. The final steps in the operation do not differ from those usually employed. Twenty-four hours have elapsed since the homatropin was instilled, and the pupil is now in a condition to respond to miotics. A fourth grain of morphia is given hypodermically a short time before the last operation. There are several advantages in doing this. It allays nervousness, makes the patient more tractable, controls to a large degree the subsequent smarting and finally tends to contract the pupil and prevent prolapse of the iris. Perhaps no condition so favors exactness as does perfect illumination of the site of operation. Therefore, I have the light from a McKensie condenser still closer focussed on the eye through a reading glass and wear an electric headlight. Thus is obtained a brilliant, direct and oblique illumination in which nothing can escape observation. A fixation forceps without a catch is used, because the instant the section is complete its purpose is accomplished and it is removed. Furthermore, it is the safer instrument, as not infrequently the lens comes out so easily that it follows the blade incident to the slight pressure exerted by the fixation forceps and the back of the knife. A Lippincott irrigator is kept ready for use, but rarely is it required. The toilet of the wound is quickly accomplished, for there can be no tags of capsule to engage between its lips. The conjunctival sac is flushed with an antiseptic, the lids smeared with the sublamine vaseline and a dry dressing applied, held in place by a figure-of-eight bandage. Over this is placed a Ring's mask, and the patient reclines upon a sofa for an hour before being sent home. In conclusion, any variation proposed in an operation which has been so thoroughly elaborated as has cataract extraction must possess decided advantages if it is to be accepted, and must overcome difficulties inherent in the usual method. The disadvantages of the procedure herein detailed may be summed up in a sentence: It requires more time and trouble, as the technique of asepsis must twice be gone over, and it involves another wound in the cornea, but as this is a mere puncture it is of no consequence. Its advantages are many. In the ordinary capsulotomy some of the difficulties are inherent in the instrument itself, but more and greater ones in the conditions under which it must be used. The straight capsulotome is kept sharp with difficulty. It cuts only when drawn toward the operator; at right angles to this it simply scratches. As soon as the section is made the iris contracts, the lens comes forward and the anterior chamber is abolished. Into this narrow space must be passed a straight instrument between cornea and lens; it is impossible to do this and reach below the equator of the lens without pressing it more or less backward, and at this stage the lens, held only by its suspensory ligament, is mobile and easily dislocated. More than this, the operator, in his zeal to make an efficient opening in the capsule, is apt to rupture this ligament and loss of vitreous ensues. There are no means of knowing that the capsulotomy has been inadequately performed until the lens, when pressure is applied to the globe, refuses to come forward. In this event, then, either the fixation forceps must be reapplied, a difficult and dangerous thing to do on an opened eye, or the cystotome reintroduced without its help, trusting to the patient keeping still.

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* Read before the American Academy of Ophthalmology and Oto-Laryngology, September, 1906.

The pupillary space being narrowed by the contraction of the iris leaves insufficient room to work in and it is a difficult matter not to wound the iris or entangle it in the tip of the instrument. If the bent cystotome of Knapp is used, then are these difficulties enhanced, and not only are there greater difficulties in removing fragments of cortex, but a peripheric capsulotomy leaves two thicknesses of lens capsule in the pupillary space and more often is required a secondary operation. Should blood enter the anterior chamber, then are the difficulties before mentioned further increased. None of these difficulties accompany a preliminary capsulotomy: 1. The knife needle can be made superlatively sharp and efficiently cuts the capsule in both directions. 2. Only through the grossest carelessness can the suspensory ligament be ruptured or the lens dislocated, for it is held firmly in place by the vitreous behind and the aqueous in front. 3. Ample space is given through the dilated pupil, and the point of the knife may be kept fully in view during the division of the capsule, and, furthermore, the operator has the satisfaction of knowing that this is perfectly accomplished. 4. The iris can not be wounded or entangled in the instrument and there can be no bleeding to obscure the field of operation. In brief, it simplifies and makes certain a step in the operation which is usually fraught with difficulties and dangers.

A TANGENT-PLANE FOR ACCURATELY MAPPING SCOTOMATA AND THE FIELDS OF FIXATION AND SINGLE VISION AND FOR INDICATING THE PRECISE POSITION OF DOUBLE IMAGES IN PARALYSIS.*

Alexander Duane, M.D.

NEW YORK.

The apparatus which I exhibit here was first shown before the New York Academy of Medicine in January, 1906. It was, therefore, projected and in use, before I had the opportunity of learning of a very similar device which Syms and Sinclair have employed and which they described in the *Ophthalmic Review* of the following May. There is, in fact, nothing specially original in the idea underlying the apparatus, but the application of the idea in its present form offers certain features which experience has shown to be of considerable practical utility.

The apparatus consists of a curtain, black on one side and white on the other. On the white side is drawn a perimetric chart consisting of a series of concentric circles and radiating lines. The concentric circles represent arcs of 5°, 10°, 15°, etc., calculated for a radius of 30 inches and projected on the tangent plane. By a simple device the curtain can be raised or lowered so that the common center of the system of circles can be placed directly opposite the patient's eye. The radiating lines represent the projections of the meridians (horizontal, oblique and vertical) taken for each 15°. The white surface is also covered with a checker board of foot and two inch squares.

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* Exhibited before the American Ophthalmological Society, June, 1906.

The black surface is marked only by a white pin in the middle, indicating the center of the perimeter chart, and by white pins around the edge, indicating the termini of the different meridians. This last feature I have borrowed from Syms and Sinclair. The frame is strong, light and portable, so as to be readily shifted from one side of the room to the other. It can also be taken apart for transportation. The curtain is 5 feet high and 4 feet 5 inches wide, giving a lateral range of 40°, an upward range of 35° and a downward range of 52°. The lateral range can be extended to 55° or 60° by a tape attached to either vertical arm of the frame and marked with a tangent scale of degrees.

USES OF THE APPARATUS.

A. *To Plot Central and Paracentral Scotomata.*—The patient is seated facing the black side of the curtain and exactly 30 inches from it, and the curtain is raised until the white pin is just opposite the eye to be tested. Directing him to fix the pinhead steadily, we carry the test-object (white pin, square of white paper, electric light, etc.) in from periphery to center, along each of the meridians in succession, i. e., we carry it from each marginal white pin in turn toward the white pin in the middle. The points where the test-object enters the scotoma and where it emerges from it in each meridian, are marked by thrusting black pins through the curtain. The plot of the scotoma thus outlined can then be taken off from the reverse side of the curtain, where the pins stick through, and can be transferred to a perimeter chart.

In some cases it will be advisable to plot scotomata on a larger scale than that here indicated, i. e., using a radius of one or even two meters instead of 30 inches. In such cases, of course, the perimeter chart on the reverse side is no longer applicable. We then must use the plan suggested by Syms and Sinclair, of measuring off the distance between each inserted black pin and the central white pin, using for this purpose a yardstick or tape marked with a tangent-scale calculated for the given radius. Such a tape I show here, marked on one side for a radius of 30 inches, on the other for a radius of 2 meters.

Not only scotomata, but also the limits of the field, when moderately contracted, and in any case, the limits of the color field, can be plotted with this apparatus, and that too very quickly.

B. *To Plot the Field of Fixation.*—The field of fixation is plotted in a very similar way. For this purpose the patient's head is fixed and in such a way that the eye in the primary position is directed precisely at the central white pin. The eye is then made to follow the test-object as far as it can along each meridian, the limit of its excursion in each case being marked by a pin thrust through the curtain. The test-object in this case consists preferably of a pair of fine parallel lines on a small white card.

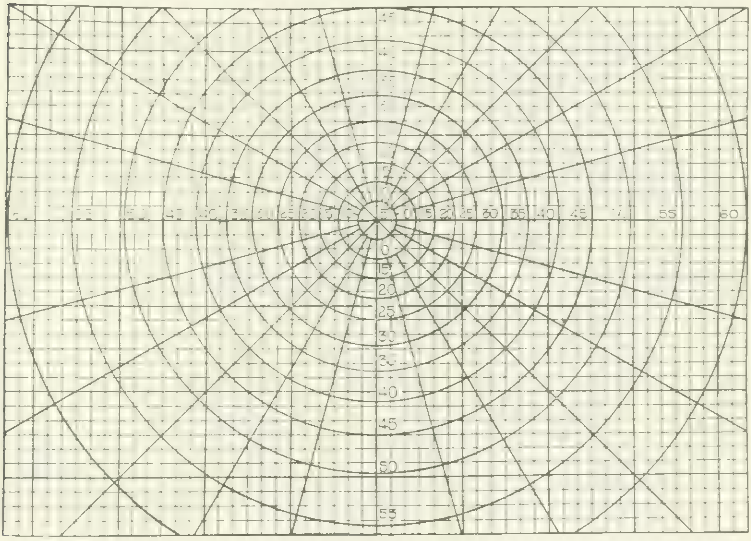

Fig. 1.—Chart used for plotting double images in paralysis, etc., and the field of fixation. The chart, which is 5¼x3¾ inches, is a precise facsimile of the reverse side of the curtain of the tangent plane, reduced to 1/20 of its natural size. The small squares of the checkerboard denoting two-inch intervals, the larger squares intervals of one foot. The circles represent intervals of 5°, and are drawn on the assumption that the patient is just 30 inches from the tangent plane. Under these conditions the checkerboard on the chart will correspond square for square to the checkerboard on the curtain, and a plot made on the latter by pins thrust into it to show the exact site of double images, the outlines of the field of single vision, the limits of the field of fixation, etc., can be transferred at once to the checkerboard on the chart.

C. *To Mark Out the Field of Diplopia.*—The line separating the fields of single and double vision is similarly plotted. The test-object in this case is a small electric light like that here shown. The patient faces the screen as before, but with both eyes open and with a red glass before one eye. With his head fixed he follows the light until it appears double. The point where this occurs on each meridian in succession is indicated by a pin inserted into the curtain.

By carrying the light on into the field of double vision the kind and amount of diplopia can be graphically shown. This is done by marking the situation of the light itself with a black pin and the situation of the double image (in this case the false image) with a white one. In this way we not only record the exact distance and relative disposition of the double images, but also show which is the fixing eye. For if with the red glass before the right eye, the patient says that the point where we have actually placed the electric light looks red, it is evident that the right eye is fixing, while if it looks white the left eye is fixing.

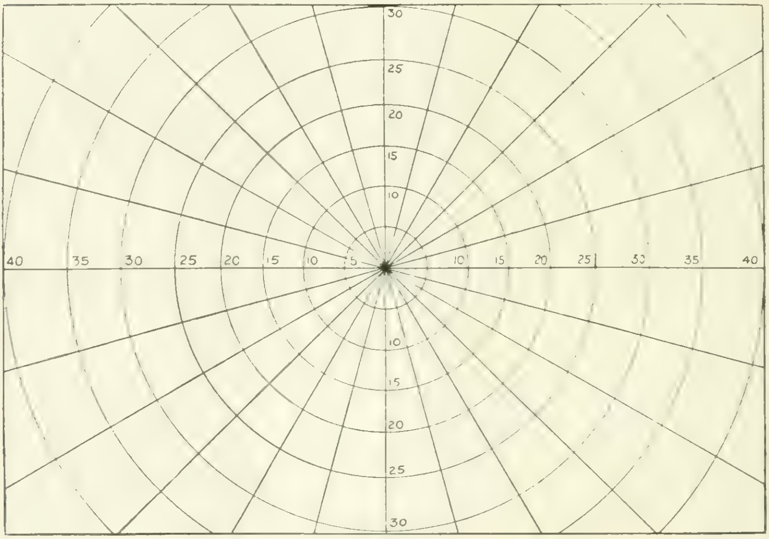

Fig. 2.—Chart used for plotting scotomater. Actual size of chart 5⅜x3¾ inches. The meridians are drawn for every fifteen degrees, and the limits of the scotoma are indicated on each meridian by dots representing the pins thrust through the corresponding meridian on the tangent-plane curtain.

In plotting the position of the double images, the checker board of 2 inch squares on the back of the curtain is a considerable help, especially if, as in the specimen here shown, (Fig. 1) a chart is used that is similarly checkered. In general I use this kind for plotting double images and a chart drawn on double the scale for plotting scotomata (see Fig. 2). If the plot is made from the outline made by the pins on the reverse side of the curtain, we must remember to reverse it in the diagram, putting right for left and vice versa. After a little practice this is easy.

The advantages of the method are: 1. Accuracy.—In this regard it is vastly superior to the ordinary perimeter for plotting scotomata; and for indicating the double images in paralysis it excels any other plan that I know of. 2. Simplicity. 3. Thoroughness. 4. Rapidity.

Reviews.

POISONING OF THE LENS SUBSTANCE IN THE CAUSATION OF CATARACT.*

ALFRED LEBER.

[Reviewed by Frederick A. Davis, M.D., Denver, Colo.]

Alfred Leber, in his paper on the "Metabolism of the Crystalline Lens," reports that he has repeated the experiments of Bence-Jones, Otho and others in an attempt to reconcile their contradictory results. He has also investigated the behavior of the lens when surrounded by a medium rich in organic substances, especially such as are likely to be present in the humors of the eye in health and disease.

Besides repeating the experiments of his predecessors, he has improved their technic and has excluded many sources of error which vitiated the earlier trials. The lenses, mostly ox-lenses freshly excised, were immersed in isotonic solutions of the various salts. After freezing with ethylchlorid, the cortical substance was carefully separated from the nucleus. Quantitative estimation was made of each substance where it was possible.

Compounds of the halogen series were first compared and some were found to enter the lens more rapidly than others. Arranged in order according to the rapidity of absorption, we find, first, lithium chlorid; second, potassium iodid, sodium iodid and manganese chlorid which behave alike; third, potassium ferro- and ferri-cyanides. "Thus it is evident that the crystalline lens behaves differently toward the various chemically indifferent substances which, when employed in equi-molecular solution, have no appreciable effect on the lens tissue."

The organic compounds experimented with fall naturally into two classes: (1) Those which do not penetrate the capsule; (2) those which penetrate the capsule and are more or less rapidly absorbed by the lens substance. Glycogen and amylo-dextrin do not pass through the capsule. Grape sugar was found in the lens at the end of one hour. Cane sugar is probably absorbed only as inverted sugar, being changed by a ferment in general very widely distributed and already demonstrated by Theodore Leber in the aqueous humor.

Among the albumins, zein was absorbed by the lens after a short time. Peptone was not absorbed. Hemoglobin has been recognized *in vivo* in a number of cases of injury, cases in which the capsule was probably uninjured.

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* Graefe's Archiv. für Ophthalmologie, vol. lxii, No 1.

Coloring matters were also the subject of inquiry. A 2 per cent. isotonic solution of fluorescein and sodium chlorid penetrates the capsule readily, but only the outer layers of the lens substance showed the color after many hours. Methylin violet and fuchsin showed less penetrating power than fluorescein. Anilin was found in the lenses of tadpoles anesthetized by the addition of anilin to the aquarium water. Beta-naphthol was not recognized in the lens, the only known test with ferric chlorid being unreliable. The absorption of naphthalin was not conclusively proven, as no reagent is known to prove its presence. The characteristic odor, however, was apparent in the nucleus after the lens had been frozen and the cortical carefully separated. Chloroform, phenol and acetone all appeared in the lens in a short time. In the case of each of these compounds, solutions of their different strengths were employed as follows: 1:100, 2:100, 1:1000. Acetone in a 1:1000 solution was found in the lens at the end of an hour.

The mere glance at the above experiments would suffice to convince one that a selective property is inherent in the lens substance. An analysis of his results has led Leber to suggest a new theory of lens metabolism and a new viewpoint from which to consider the phenomenon of cataract formation.

In order to understand his theory, it is necessary to recall to mind the fact that the lens and the central nervous system are both developed from the epiblast. They are similar in chemical composition; the lens, like the central nervous system, is rich in cholesterin and lecithin.

Their common origin and similar chemical composition lead us to expect similar physiologic properties and functional behavior. Hence Leber propounds the question: Whether substances which possess a peculiar affinity for nervous tissues might not show likewise a preference for the lens over other tissues?

In fact, Leber applies to the lens the Meyer and Overton theory of narcosis, which briefly stated is as follows: "In the chemical constitution of nerve substance, fats and allied bodies are essential components; correspondingly, the nervous portions of the organism, according to their richness in fat, show a certain affinity toward chemically indifferent substances which are soluble in fats and bodies allied to fats." The relative power of a narcotic, according to Meyer, is dependent, first, upon its mechanical affinity for fats and similar compounds, and, secondly, upon its coefficient of divisibility. Lecithin, cholesterin and protagon he classes together under the name of lipoid substances. He describes the condition of the cell protoplasm as "a mixture-solution like a swelled-up sponge, in which the solid tissue is furnished by the lipoid substances, while the imbibition water of the protoplasm represents the liquid in the sponge."

If now we refer to Leber's experiments with the substances soluble in fats and lipoids, we find that chloroform, phenol, acetone, and anilin were rapidly absorbed, some of them from very dilute solutions. So far as we may reason from analogy we are justified in concluding: "That a continuous supply of even a small amount of these substances will change, first, the chemical composition, then the molecular constitution, and, finally, the index of refraction of the lens." Such conditions exist in the cases of cataract from naphthalin and beta-naphthol, both of which compounds are soluble in lipoids.

"Intermediate products of metabolism soluble in lipoids may account for the occurrence of cataract in diabetes, tetanus and struma."

Jacobsen and Cahn found an increase in cholesterin and lecithin in cataractous lenses and in the lenses of old people. "This large increase in lipoid substances in the senile lens may make the lens more vulnerable to the products of defective metabolism, such as butyric acid, acetic acid, and especially acetone, which under normal conditions would be excreted."

[Our ideas of the nature of cataract have been too largely mechanical. The mechanical explanation has been favored by what we know of traumatic cataract and the changes produced by operations for artificial ripening. Mechanical explanations fit well with the changes known to occur in common forms of cortical cataract, or where the opacity begins at the junction of the nucleus and cortex. They also accord with the occurrence of cataract after the injection of saccharin solutions and in connection with the concomitant changes in the intraocular fluids that have been most studied and which are likely to cause abstraction of water from the lens. In calling attention to the changes in the lens as viewed from the chemical and metabolic standpoint Leber makes a distinct advance. He has demonstrated that the lens substance has a distinct selective action, a nutrition of its own. A better understanding of the causation and prevention of cataract is to be expected by studying it from this point of view.]—E. J.

Notes and News.

In Pisa Dr. L. Ricchi has qualified as Privatdozent in ophthalmology.

Dr. Alvin A. Hubbell, of Buffalo, spent his vacation on the Great Lakes.

Dr. Rymowicz, late professor of ophthalmology at the University of Kazan, is dead.

Prof. Dr. Hugo Magnus, of Breslau, has been given the title of Geh. Medizinal-Rat.

Dr. Geo. Fiske, of Chicago, has just returned from Europe where he spent the summer.

Dr. W. Leitner, Budapest, has qualified as instructor in the ocular diseases of childhood.

Wills Eye Hospital, Philadelphia, received a bequest of $500 from the estate of the late Annie E. Hamilton.

Dr. Kenneth Scott announces the resumption of ophthalmic practice at 7 Manchester Square, W. London, England.

An Italian dispensary has been opened in Denver, Colo., in which Dr. Frederick A. Davis has charge of the eye department.

At a recent meeting of the Fifth District Medical Society of South Dakota, held at Madison, Dr. H. H. Frudenfeld was elected secretary and treasurer.

Prof. Anton Elschnig, of Vienna, and Dr. Michael Halik, of Chrudim, have received the cross of the Knights of Franz Josef.

Dr. A. Hall, Dunedin, Australia, is at present attached to the Royal Ophthalmic Hospital, and the Golden Square Ear, Nose and Throat Hospital, London.

A fee table for *x*-ray work has been proposed in which examinations of the accessory sinuses are to cost $25 to $50, and location of foreign bodies in the eye, $25 to $50.

Dr. Heman H. Brown, in his capacity of president of the Illinois Medical College, conferred degrees upon fifty students at the twelfth annual commencement exercises held August 23, 1906.

Dr. Edward Jackson, of Denver, Colo., was chairman of the section of ophthalmology at the meeting of the Colorado State Medical Society, held at the Albany Hotel, Denver, October 9 to 11.

Dr. A. M. Murray, of Chicago, has returned from Europe where he spent more than a year in postgraduate work in ophthalmology. He is at present assisting Dr. David Fiske at the Policlinic, Chicago.

Dr. Casey Wood has been appointed professor ophthalmology and clinical ophthalmology in the medical faculty of Northwestern University and will have charge of these departments in the Medical School.

Drs. Arthur J. Patek, Arthur W. Akerly and Geo. P. Barth have been appointed by the Milwaukee Medical Society to conduct an experimental examination of school children at the expense of the society.

Forty-eight persons who arrived at San Francisco on the steamer Siberia were held by the quarantine officer on account of trachoma. Twenty-seven of these were Japanese and fifteen were Hindus.

DRS. RAVIART, Brivat de Fortunie and Lorthiois have been awarded the Aubanel prize of 650 francs for their memoir on "The Diagnostic Value of the Ocular Signs in the Different Periods of General Paralysis."

THE Eye Hospital of Wiesbaden, which was built for Alexander Pagenstecher in 1854, has been entirely rebuilt on modern lines. The hospital contains seventy beds in the wards and ten private rooms for first-class patients.

PROF. DR. HERMAN KUHNT, professor of ophthalmology and director of the University Eye Clinic at Konigsberg, i. Pr., held a jubilee with many of his students and assistants upon the occasion of the twenty-fifth anniversary of his appointment as professor.

MR. R. MARCUS GUNN, the well-known London oculist, has been successfully defended recently in a suit of malpractice on account of alleged negligence in operations performed upon the eyes of a foreigner called variously "Goldenfeld," "Schleifestein" and "Collins."

DR. MELVIN E. PAGE of Oswego, N. Y., died in that city on September 9, three days after an operation for appendicitis. He was a graduate of Bellevue Hospital Medical College of New York, 1899, and was 40 years of age. He was a specialist on diseases of the eye and ear.

COMMISSIONER OF IMMIGRATION WATCHORN claims that 10,000 cases of trachoma exist among the foreign population of New York. The health board, through its inspectors, is doing much practical good in running these cases down and getting them started under treatment.

MR. GEO. H. MCLAREN and Mr. I. G. Macdonald have been appointed sub-inspectors in connection with the ophthalmic hospitals of Egypt. Mr. McLaren was formerly house surgeon to the Birmingham and Midland Eye Hospital and Mr. Macdonald served in the same capacity in the Royal Westminister Ophthalmic Hospital. The term of service is two years and the salary $2,500 per year.

A new method of localizing foreign bodies in the eye or orbit, modified from that of Dr. Sweet, has been devised by Dr. Chas. F. Bowen, of Columbus, Ohio. The apparatus holds the patient's head absolutely quiet during the exposure and the plates may be changed without moving the head.

Geh. Med. Prof. Dr. Herman Cohn, professor of ophthalmology at the University of Breslau, died on September 11, at the age of 69 years. He is well known for his work on ocular hygiene and was intimately connected for many years with the *Wochenschrift für Therapie und Hygiene des Auges.*

Dr. Alexander K. MacLean of Chicago died August 12, at Battleford, Sask., from acute dysentery. He was professor of otology, rhinology and laryngology of the Chicago Eye, Ear, Nose and Throat College, and instructor on diseases of the eye, ear, nose and throat in the Illinois Medical College, Chicago.

In the United Kingdom literature for the blind, printed in Braille and other type, and consequently bulky, has been allowed special rates of postage. In order to prevent abuse of this privilege a special label issued by the British and Foreign Blind Association, Great Portland Street, London, is required on all packages of this class.

Dr. Frank Allport has been appointed to the chair of otology in Northwestern University Medical School. He still retains, however, his chair of clinical professor of ophthalmology and otology. With him are associated Dr. Charles M. Robertson, assistant professor of otology; Dr. F. S. Crocker and Dr. E. Russell Ogden, instructors in otology.

The Cork Guardian body recently offered the munificent (?) sum of $250 for the first year and $300 for the second year as compensation for the services of an oculist to care for their special cases. The matter remains undecided, however, as one faction insists that a well qualified general practitioner is all that is needed, while the other faction insists upon having an oculist. A postponement of the election for six months was finally decided upon after a disgraceful row.

The following gentlemen will assist as teachers, especially in Wesley Hospital and the South Side Free Dispensary: Dr. C. G. Darling, ophthalmologist to Brainard Policlinic, assistant surgeon Illinois Charitable Eye and Ear Infirmary, and late professor of ophthalmology Dearborn Medical College; Dr. Clarence W. Heath, late clinical instructor of ophthalmology in Chicago Policlinic; Dr. Richard J. Tivnen, assistant surgeon Illinois Charitable Eye and Ear Infirmary; Dr. Alex. P. Horwitz and Dr. George Thomas Jordan.

A NEW attachment in the form of a dial for watches has been put on the market by a Vienna firm so that the blind of any nationality may read the time. A series of symbols is substituted for the usual numerals. The first six signs are raised and are white symbols on a black ground. The second six symbols are depressed. A point stands for one, two points for two, a triangle for three, a square for four, a five-pointed star for five and a cipher for six. The hands of the watches should be of heavy steel to withstand the constant handling.

THE annual report of the Victorian Eye and Ear Hospital of Melbourne, Australia, shows that during the past year 707 in-patients and 5,748 out-patients have been treated. Twelve per cent. of those attended lived outside of the 50 mile limit. The expense of caring for these patients was £3,652, the revenue amounted to £3,961, so that a balance of £309 remains. The out-patient department has outgrown its quarters and arrangements are now being made with the Metropolitan Board of Works to purchase additional ground adjacent to the present building.

PROF. DR. WILHELM CZERMAK, professor of ophthalmology and director of the University Eye Clinic in Prag, is dead. Professor Czermak was for many years the director of the Eye Clinic at Innsbruck. He is known chiefly for his masterly work "Augenärztlichen Operationen" which has been appearing in sections since the year 1893. His hospital work was particularly well organized and a visitor could not fail to be impressed with the perfection of detail and general management. His operating room was unusually well arranged and his work there was carried on with the regularity and perfection of a machine. His sudden death leaves his work on eye operations still unfinished, an additional cause for regret to ophthalmologists.

The following is a list of the officers of the American Academy of Ophthalmology and Oto-Laryngology, elected at the eleventh annual meeting held in St. Clair, Michigan, August 30 and September 1: President, Dr. Joseph A. Stucky, Lexington, Ky.; Vice-Presidents, Drs. Richard A. Reeves, Toronto, and Eugene Smith, Detroit; Secretary, Dr. Geo. F. Suker, Chicago (reëlected); Treasurer, Dr. Otto J. Stein, Chicago (reëlected); and Members of the Council, Drs. Joseph A. Stucky, Lexington, Ky.; Hanau W. Loeb, and Adolf Alt, St. Louis; Alvin A. Hubbell, Buffalo; and Wm. Lincoln Ballenger, Chicago. The next meeting is expected to take place at Louisville, Ky. The date and place of meeting, however, is in the hands of the council.

Superintendent Gerard of the Illinois Charitable Eye and Ear Infirmary, Chicago, has completed the annual report of the institution and it is now in the hands of the State Board of Charities. The building now being erected on Peoria Street, north of the present building, has reached the third story and the interior fittings, plumbing, etc., are now being installed. One wing of the new building will be in condition for occupancy on November 1. The additional ground purchased for the new building is 100x125 feet, giving plenty of room and making it possible to have a building sufficiently large to relieve the chronic congestion in the old wards. The old wards frequently contained eight or nine beds when the space was sufficient for only five beds. The number of beds in the entire institution will now be 225 and increased space will be devoted to the dispensary department.

SECTION ON OPHTHALMOLOGY OF THE AMERICAN MEDICAL ASSOCIATION.

Notice to Authors of Papers.—In preparing and carrying out the program for the Section on Ophthalmology of the American Medical Association for the Atlantic City session, June 4-7, 1907, the officers and Executive Committee will follow the by-laws and standing resolutions of the Association, and the precedents established by the Section, which provide that:

1. Only members of the American Medical Association can take part in the Section work. (This will not be construed as barring any person who is eligible to membership by being a member of an affiliated organization, and who will join the American Medical

Association prior to the final acceptance of papers for the Atlantic City session.)

2. Any member of the Section on Ophthalmology of the Association who has twice permitted his name to be listed on the program of the Section as intending to present a paper, and has failed to attend the sessions at which those papers were due, and to give satisfactory explanation of his absence, shall be no longer eligible to present a paper before the Section until he has attended at least two consecutive sessions.

3. The number of papers shall not exceed forty, of which fifteen are to be on invitation of the Chairman.

4. No paper shall be of such length as to require more than fifteen minutes for its reading.

5. The member opening the discussion of a paper shall not have more than *ten* minutes, and subsequent speakers five. No member shall speak twice on the same subject.

6. Papers are to be accepted in the order of their reception, and at the discretion of the Executive Committee.

7. The typewritten paper itself, as also a typewritten abstract of it, must be sent to the Secretary of the Section before April 1, 1907. The abstract, which must appear in the official program, should contain not less than fifty nor more than two hundred words. Members are especially urged to send in their papers before April 1, if possible for them to do so, as an effort will be made to have the accepted papers put in type soon after their receipt. Reprints will be printed and distributed to all members of the Section at least two weeks before the session. The reading of the paper at the session will be done away with, though each essayist will be given five minutes in which to call attention to particular points in his paper and introduce the discussion. Each essayist will be required to order from the Association office and to pay for seven hundred and fifty reprints of his article to be placed at the disposal of the Secretary of the Session for mailing to the Section members. (The Section now has 730 active members.)

8. All papers presented to and accepted by the Section become the property of the Association.

9. No paper can appear in *The Journal* of the American Medical Association or in the printed transactions of the Section unless it has actually been read or defended by its author, or unless, for special reasons when the author has been present and prepared to read or defend the paper, the Section has unanimously voted to have it read by title. Members of the Section are, therefore, requested not

to submit papers for acceptance unless reasonably positive of attendance at the Atlantic City session.

10. No paper shall be accepted for the program or approved for publication unless it can be classed under one of the following heads: First, such as may contain and establish positively new facts, modes of practice, or principles of real value. Second, such as may contain the results of well-devised original experimental researches. Third, such as present so complete a review of the facts on any particular subject as to enable the writer to deduct therefrom legitimate conclusions of importance.

G. C. SAVAGE, *Chairman.* ALBERT E. BULSON, JR., *Secretary.*
Nashville, Tenn. Fort Wayne, Ind.

THE following special papers will be presented at the Atlantic City session, by invitation of the Chairman:

SYMPOSIUM ON CATARACT EXTRACTION.

1. Preparation of the patient, including anesthesia.
2. The corneal incision and iridectomy. The instruments used. The complications and how to deal with them.
3. The delivery of the lens without capsule and in capsule.
4. Irrigation of the anterior chamber and the first toilet of the wound.
5. Immediate after-treatment of operated cataract cases.
6. Secondary cataract. When and how to operate.

OTHER SURGICAL PAPERS.

1. The surgical treatment of chronic glaucoma.
2. The surgical treatment of chronic trachoma and its sequelæ.
3. The operation for pterygia.
4. The preventive treatment of sympathetic ophthalmia.

MEDICAL PAPERS.

1. The treatment of purulent conjunctivitis.
2. The treatment of corneal ulcerations.
3. The treatment of interstitial keratitis.
4. The treatment of iritis.
5. The treatment of acute trachoma.

The members of the Section are herewith advised that no paper bearing strictly upon any one of the above named topics will be accepted, as an effort will be made to avoid repetition in the program. G. C. SAVAGE, *Chairman,* Nashville, Tenn.

ALBERT E. BULSON, JR., *Secretary,* Fort Wayne, Ind.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, NOVEMBER, 1906. • VOL. XV. NO. 11, NEW SERIES.

Original Articles.

DIAPHANOSCOPY OF THE EYE.*

H. V. WÜRDEMANN, M.D.
MILWAUKEE, WIS.

That the coats of the eye are translucent and that the globe may be more or less illuminated and its anterior segment examined by a beam of light, has doubtless been observed for a long time. Oblique illumination in the dark room has revealed this to all of us, but the lighting up of the structures back of the iris by this method is so feeble in contrast to the superior illumination of the surfaces of the cornea, iris and lens that the value of such examination has not generally been recognized. Some of us have seen intraocular tumors by this method. The shadow cast by them, however, has not been noticed until recently. O. Lange[1] claims to have used transillumination of the sclerotic for the differential diagnosis between intraocular tumor and simple serous detachment of the retina or chorioid, in 1884, and refers to this again in recent articles.[2]

Rochon-Duvigneaud devised a very pretty little instrument consisting of a tube carrying a miniature electric light containing a condensing lens, the light passing out of the cone-shaped end of the instrument.[3] This gives a rather feeble light and gets very hot. This instrument was followed by von Reuss', Hirnbacher's, Leber's (containing 10 c. p. lamp) and Sach's (containing 25 c. p. lamp) instruments, and more lately by one of my own design,[4] and later still with one by Lange. I have not seen the Von Reuss or Hirnbacher instruments, but I understand that they are open to the same objections as those of Leber and Sachs, being unhandy, unwieldy and expensive, and getting hot upon very moderate use. Neither have I seen the Lange instrument, which the author states is 11.5 cm. long, weighs 67 grams and requires a current of 10 volts, and sells in Germany for $3.25. Surely an inexpensive apparatus, but I understand that this too very quickly gets hot, and a current of 10 volts is not readily obtained either from our ordinary storage batteries or from the usual reduction coils.

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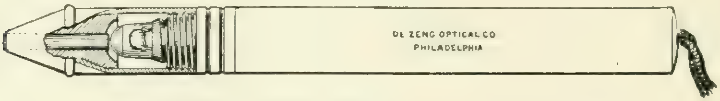
* Read before the British Medical Association, Section on Ophthalmology, Toronto, Canada, Aug. 21 to 25, 1906.

1. Klin. Mon. f. Aug., p. 410, 1884.
2. Klin. Mon. f. Aug., p. 362, 1906, and Ueber Symptomatologie und Diagnose der Intraokulären Tumoren, published by Marhold, of Halle A. S., 1906.
3. La Grange, Tumeurs de L'Oeil, Paris, 1905.
4. Ophthalmic Record, May, 1906.

The instrument I have devised,[5] of which I understand there are already more than 200 in use within the last three months, is made mostly of hard rubber, weighs 30 grams, is 14 cm. long and 10 mm. in diameter, of the size and shape of an ordinary fountain pen, and is manipulated in the same manner. It consists of a handle, to one end of which the battery cords are connected; in the other end is a miniature *lens-capped* lamp, a very essential feature, for the illumination from this is three and one-half times that of the ordinary lamp, as the light is condensed right over the filament. Then comes a cylinder, in the end of which is a cone-shaped piece of hard rubber, through which passes a glass rod, 2½ cm. long and 5½ mm. in diameter, which extends a fraction of a mm. beyond the rubber tip of the cone. The inner end of this comes in contact with the lens-capped lamp, and thus nearly all the light made by the lamp is conserved and is projected through the glass rod, coming out of the cone as an almost parallel beam. It is claimed that this little instrument, with its miniature five candle-power lamp, and needing less than one volt of electric current, gives as great a light as the Brobdingnagian apparatus of Sachs'; having so small a lamp and being made almost entirely of a slowly heating material, it does not get hot like the other instruments, notably those of Leber and Sachs, which are made of all metal. Then, again, these lens-capped lamps have a universal screw base and can be obtained from any electric supply house and are relatively long-lived and cheap. (Diaphanoscopy may also be made with the ordinary miniature lamp in the same instrument, but the light is not so great.)



Author's Transilluminator: 2/3 actual size.

Dr. Robert D. Gibson of Youngstown, Ohio, has devised an instrument for the purpose of conveying a small light into cavities. By his permission I have adopted a portion of his instrument by extending the glass rod of my transilluminator 2½ cm. beyond the cone, bringing it to a rounded ended tip, in which the light is focused and reflects from that point. It may be inserted into such cavities as the aural canal, the mastoid or frontal sinus during an operation, or even into the ocular globe after incision of the sclera.

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[5] Made by the DeZeng Standard Optical Company, Philadelphia, to be obtained of any instrument house; price $10.00.

With all these instruments the method of examination is about the same. The room should be very dark. The tip of the instrument is placed on the lids, the eyes being open, or on the scleral conjunctiva, in the latter case the eye usually being cocainized. With the bulky and speedily heating instruments of Leber and Sachs the latter method is unpleasant and an awkward procedure, but with the pen-shaped instruments of Rochon-Duvigneaud and Würdemann it is easily made. In fact, with my design, it is really unnecessary to cocainize the eye, for the application of the smooth end of the glass rod to the scleral conjunctiva is not at all disagreeable. My model may be used for ten minutes or more before it gets disagreeably warm. The Leber instrument gets so hot in a couple of minutes that it will burn the skin, and the Sachs' does not stay cool even as long.

It must be remembered that the eyeball is so contained in the socket that a beam of light can only be sent through about the axis of one hemisphere at a time, and while we gain a little by rotation of the eye, yet fully a third of the back of the ball, necessarily including the nerve and fovea, remains impermeable to such examination. Therefore, this method only brings into light the anterior two-thirds of the globe; but it is evident that nearly all of the important structures of the eyeball are in the anterior third upon which the new method throws more light.

The conjunctiva and cornea are best observed by direct and oblique illumination, for which transillumination can not be excelled. Foreign bodies are readily brought into view, and when the tip of the instrument is placed on the sclera, minute foreign bodies and stains from iron rust, emery, etc., are sometimes rendered visible when direct and ordinary oblique examination fails. If the cornea be leukomatous or staphylomatous, the structure will be rendered decidedly translucent by this method, and atrophy of its coats, foreign bodies, exudates and tumors of the anterior chamber be readily brought into view.

The iris is rendered quite translucent, its folds and pigmentation are readily observed. The diseased iris in iritis and glaucoma is seen to be thickened and less translucent. In almost all cases where there has been preëxisting iritis, spots of atrophy, through which the light plainly shows, are observed. Synechiæ may be more readily distinguished; even without dilatation of the pupil, the iridic pigment left on the anterior capsule of the lens is plainly seen.

Capsular cataract shows up well, and even where the lens is entirely opaque a reddish glow will be observed through the pupil if there be no obstruction back of the lens in the vitreous. In some cases the nucleus of the cataractous lens is easily seen. This method has been of especial value in determining the condition of the iris and of the lens in several cases of cataracta accreta, in capsular cataract and secondary cataract, in uveal disease, and especially in two cases of sympathetic ophthalmitis. If a foreign body of any size be in the iris, lens, anterior part of the vitreous or ciliary body, it may be directly seen through the pupil or its shadow may be observed.

The ciliary body of the normal eye shows plainly as a dark ring just outside of the limbus; in high myopia this is fainter, in moderate hyperopia darker, i. e., considering the color of the person, blondes, of course, having less pigment in the ciliary region, as well as in the skin, than brunettes or the dark races.

As a large percentage of intraocular tumors occur in or about the ciliary region, the method is here invaluable for differential diagnosis between retinal detachment, glaucoma and intraocular tumors, not only to prove the presence or absence of such growths, but to show the position, size and area of the tumor. The ball remains translucent in glaucoma and retinal detachment; in intraocular growths a shadow will be cast, clearly defining the nature of the disease, its size, site and area. If the lens be clear, under diaphanoscopy the tumor may also be directly seen as by the ophthalmoscope. Indeed, I have often observed the optic nerve and blood vessels without the ophthalmoscope, in using this method. If the lens be opaque, of course the ophthalmoscope is of no service. Diaphanoscopy, however, gives an assured diagnosis, and in such cases I have recently secured several victorious diagnoses.

My instrument is also perfect for transillumination of the frontal sinus or the mastoid, and by removal of the cone-shaped tip and placing the lamp in the mouth (the handle being protected by a piece of gauze), it is as good as the larger lamp for the detection of pus within the maxillary sinuses.

Diaphanoscopy is a relatively new method, but is indispensable for satisfactory examination of the anterior two-thirds of the eyeball, especially in cases of suspected intraocular tumors. It likewise gives information as to the iris, ciliary body and lens obtainable by no other method.

EYE-STRAIN AND CRIME.*

G. M. Case, M.D.

ELMIRA, N. Y.

The particular importance attached to eye-strain, in the etiology of many obscure nervous phenomena classed under "Functional Neuroses," is recognized to-day and acknowledged by most members of the medical profession. If an uncorrected refractive error will disturb the equilibrium of the nerve centers, after mature development has taken place, it must follow that, should a like condition exist in the developing child, the nerve centers would be disturbed and perversion of intellectual, moral and physical forces would be probable. Dr. Van Fleet, in a paper read before the New York Academy of Medicine in 1894 on "Defective Vision in its Relation to Crime," says: "At birth the human being is simply a creation of physical development; intellectual development comes later. The child of the most refined parents can be made a criminal, and, conversely, the child of the most depraved parents can be developed into the highest type of human being."

Education, therefore, begins in infancy through our mental appreciation of objects around us, the existence of which is demonstrated to us through the medium of the eye and ear, the other senses being subordinate. It must follow, therefore, that the career of every man is made, in part, by his environment, his opportunities and powers and also by his physical equipment for life's work.

Crime and criminal tendencies in the young have been studied by men of vast ability and experience, and all phases of the subject have been investigated. Several years ago Professor Henderson, of Chicago, wrote: "All penalogical studies are drawing us back to educational measures. Penalties have little influence upon minds not disciplined to foresight of consequences and incapable of connected reasoning." Mr. Upham, Director of the School of Letters at the New York State Reformatory, located in Elmira, says: "This is the attitude of modern social science as set forth by a trained social worker, but we must confess that it is still a position far in advance of practical acceptance by society. The natural tendency of society to retaliation and penalty for crime is still strong. Education is not our first impulse toward the criminal. Considering all facts, we must agree with Professor Henderson's views that punishment merely as retaliation and not as education is wrong; first because it utterly fails in a vast majority of cases to make the man better; second, because society or the parent is to blame for the young man's act; society because it allows conditions to exist which can produce nothing but criminals, the parent because of the moral, educational and physical training he has failed to give his son. Education, then, is the keynote of modern corrective and reformatory treatment." Mr. Z. R. Brockway recognized this. In 1876 he came to Elmira as Superintendent of the New York State Reformatory and began the work of developing and extending the educational treatment of criminals in this institution. The results speak for themselves, as fully 80 per cent. of the men paroled or discharged from the Reformatory make useful law-abiding citizens.

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* Read before the American Academy of Ophthalmology and Oto-Laryngology, September, 1906.

As a premise of what is to follow, I make a quotation from the thirtieth annual report of the New York State Reformatory at Elmira, which says: "Penal institutions, especially juvenile and intermediate reformatories, are composed of young men who as a class disclose themselves to be in their natures fundamentally about like the young men wherever found. They respond to the same influences in about the same way. In former years statistics were published as to the 'moral sense' and 'susceptibility to moral impressions.' These were based upon observations at the time of admission, when the prisoner is at a decided disadvantage, and we have come to the conclusion that they did injustice and were not of sufficient value to justify their continuance." As a writer in the *Atlantic Monthly* recently remarked: "It is true that there are peculiar specimens of humanity in prisons; cranks, freaks, degenerates and hardened and vicious characters, but so are all these to be found outside the prisons, mixed in with the other people of the world in the different grades of society." I wish also to quote from the New York State Reformatory Discipline the following: "The courts have sentenced these men to imprisonment to remove them from society for the time being, to the welfare of which their acts have shown them to be a menace. The reformatory rather than the state prison has been selected as the place of imprisonment on the theory that there is possibly enough good in them to justify the hope that they can be changed so as to cease to be a burden on the public by becoming law-abiding and self-supporting citizens.

"Bringing about such a change is our commission.

"Punishment for some particular crime they all receive, in that such crime leads to the restraint of their liberties while they are in the institution. This, however, is but an incident.

"We are not asked to consider the past, but only the future. The commitment papers give us no information as to the circumstances of their misdeeds and no suggestions as to how long they should be confined. We are by statute expressly permitted, in our discretion, to 'allow any prisoner to go upon parole outside the reformatory buildings and enclosure' and to give 'an absolute release or discharge from imprisonment' when it appears 'that there is a strong reasonable probability that any prisoner will remain at liberty without violating the law.' Conversely, with certain limitations hereafter noted, we are expected to keep them until they are educated, trained and reformed so as to stand this test.

"The institution, therefore, primarily is a great school.

"We have already stated that we do not find anything mysterious or distinctive about the ordinary criminal. He is thoroughly commonplace, so the education and training he requires does not differ materially from that which would be good for the ordinary man.

"We have discovered no alchemy for turning base metals into gold nor any different methods for making good citizens than those which prevail in the best public and private schools for free men.

"Mr. Joseph F. Scott, before the National Prison Congress last year, thus, in a few words, summed up the principle under which he works: 'The best method for the reformation of criminals is to subject them to a system of discipline and training which is found essential to the training of the normal youth to correct moral and social living.'

"We try to develop what good natural qualities, physical, mental and moral, they may possess, and add new ones, and to make them masters of themselves so they may keep evil impulses in check.

"The particular crime for which he was sentenced, considered by itself, throws little light on the question what treatment a prisoner needs. It seldom happens that a man goes wrong suddenly. Usually there is something radically wrong about him long before he becomes technically a criminal. The crime of burglary, grand larceny or forgery, as the case may be, followed naturally enough from what had gone before. We, therefore, prior to assigning him his work in the institution, find out all we can about his ancestry, environment, associations, education, habits of life, attainments, and physical and mental condition.

"These usually show very plainly why he became a criminal and suggest how the cure must come, if cure be possible."

By a careful investigation of statistics we learn that of prisoners in "intermediate reformatories" 83 per cent. of them are of good mental capacity. More than 60 per cent. of them had no education beyond the ability to read and write, and, of these 4½ per cent. are illiterates, without any education at all. More than 70 per cent. were servants, clerks, common laborers, without any industrial training, or at least to possess the rudiments of a trade. These facts are very instructive and are worthy of thoughtful consideration. Many causes have led to this condition of the individual, among which may be enumerated lack of proper parental control in early life, environment, associations, etc., and, another, impairment of the two principal human senses, hearing and seeing, especially the latter.

It is not within the scope of this paper to study the environment, opportunities and moral powers of the individual, but his physical equipment, especially from an ophthalmological standpoint. It can not be gainsaid but that impairment of vision is a most serious handicap in all walks of life, more especially in the young who have to gain about all of their useful knowledge of this world by this one sense alone.

The results of defective eyes may be varied. "Some may be content to accept the fact as it is. They would be designated stupid. Some, by persistent exercise of the organ, may develop their accommodative powers sufficiently to overcome the trouble, but it will be at the expense of some other portion of the machine. Some, battling against these odds, may not be so happily constituted as to be able to exert the force and fail. The first accepts defeat and says no more about it. The second achieves success at the expense of general health. The third, which will constitute a large proportion of the people so affected, will writhe under defeat. They will be the disappointed people. Unwilling to accept places in the lower walks of life, they try to compete with their more favored brothers. But they are handicapped and, failing in the race, because of the unequal struggle, they seek to gain by foul means what they ought to get by fair. And so, from childhood up, the world to them is never quite right. They are taught to think white when they see black. What they are told is straight, to them, seems crooked. How can an individual so weighted be expected to be like other men. To him things are never as they seem. He thinks the whole world is wrong. He becomes a criminal from necessity."

The organ of vision in the development of civilization is strikingly apparent to every one. I quote one paragraph from an exhaustive article on this subject by Dr. Geo. M. Gould, of Philadelphia, which alone furnishes a subject for serious consideration.

He says: "Not only is man's physical existence dependent upon seeing, but his intellect and all resultant civilization is literally a product of vision." The individual, therefore, who begins life with poor vision, whatever the cause, or be his environment or heredity what it may, has a struggle before him to meet the exigencies of life.

As to its effects in the production of crime and criminals little has been written.

A study of criminology leads us to a study of the individual, especially the early life. He comes into the world with a neurotic, if not an unstable cerebral mechanism, his surroundings, as a rule, only encourage these heredity tendencies and it is not unreasonable to assume that even "slight stresses or strains of life may switch him off the track into lines of inebriety, licentiousness and other habits which so often are the precursion of crime."

It is a matter of daily observation that eye-strain will disturb the mental processes, producing mental inaptitude and backwardness in children. Their comprehension seems obtuse and slow and confusion of thought exists. Irritability, even to the verge of irascibility, may be the result of a constant nagging eye-strain kept up hour after hour, for days and months, producing serious inroads upon the nerve supply. How far this may be carried towards producing mental unbalances, insanities and criminal tendencies, alcoholic and drug habits remains to be proven. I think, however, there is no room for doubting the fact that truancy in school children, in a large percentage of cases, can be traced to this cause, and which, when frequently repeated, "precipitate the individual into the life of a vagabond and criminal." Instances are common. This picture I do not think is overdrawn. It is of daily occurrence, not only in the classes that go to make up our criminals, but in every grade of society. The number probably never will be known of those who have led lives of miserable existence, if not made physical wrecks and many times moral wrecks also, from the expenditure or leakage of nerve force, in an attempt to correct a refractive error.

Through the painstaking care of Dr. F. L. Christian, senior physician to the New York State Reformatory, I am enabled to give the results of an examination of five thousand inmates on entering the institution.

Condition on admission to the New York State Reformatory at Elmira of 5,000 inmates received between 1900 and 1906:

Average age .... 20¾ years.

	Number.	Per Cent.
Addicted to use of alcohol	2,735	54 7/10
Suffering from syphilis	163	3 1/4
Suffering from tuberculosis	825	16 1/2
Suffering from defective eyesight	675	13 1/2
Suffering from defective hearing	281	5 5/8

This seems to be an unusually large number, at this age, to be addicted to the alcoholic habit. A nervous system "constantly harassed by evil effects of eye-strain needs to be quieted or numbed from this constant irritation," and it is apparent that the connection between the two, drug or alcohol habit and eye-strain, is more than merely accidental, not only among the class that go to make up the criminal, but in all walks of life. In examining the figures in this table you will observe that 13½ per cent. showed defective eyes and 5½ per cent. defective ears on admission, or in all about one-fifth were seriously handicapped by impairment of these two senses. These data were taken by the reformatory physicians for record, those with defective eyes or ears being at once referred to the oculist.

During fifteen years of service as oculist to the New York State Reformatory, located in Elmira, I have examined the eyes of several thousand inmates. These having been referred to me by the superintendent of the reformatory or the reformatory physician for defective vision, or in some cases the prisoner was lacking in deportment or failed to make satisfactory progress in school of letters or trades school; defective eyes were thought to be the possible cause. The main object, therefore, was to *relieve* a *disability*. The work has been conscientiously done, and, although far from the ideal, the results have been satisfactory, as is shown in the school work and demeanor. During my entire service I have had the hearty coöperation of the superintendents and physicians in charge. The kind of ophthalmic treatment the prisoners received seemed to be entirely satisfactory to all concerned. The general feeling, however, has been that had more painstaking care been exercised, as is done in our large ophthalmic hospitals or private practice, the results would have been proportionately better. But the time has never been quite ripe when such procedure could be carried out, mainly because of lack of adequate funds, no state appropriation being made—useless expense, as some officials state it. Importance of work does not appeal to them. Possibly it would not be straining a point to suggest that if *more* work was done along these lines *less* money would be needed in building and maintaining prisons. Detecting the ocular defects which exist in prisoners is attended with very many of the difficulties which are found in examining the eyes of school children. The present methods are such that the large number of examinations that have to be made, and the rapidity with which the oculist is compelled to complete them, materially interferes with satisfactory work. He has to overlook a considerable number of eye defects which he suspects but can not investigate; for instance, to discriminate between low grade myopia and astigmatism, whether there exists a small amount of plus or minus astigmatism, or even higher grades of astigmatism at irregular angles. It has been my custom to examine about twenty-five men in an evening. Not all of these were refractive cases. Many were malingerers. Dissatisfaction with their trade is one of the common complaints among reformatory inmates, bad eyes being one of the main excuses for wanting trade changed. Malingering is a common practice, but is usually eliminated by very simple means, many times by suggestion alone; but in occasional cases ophthalmoscope, ophthalmometer and skiascope have to be utilized for its detection. A good ophthalmometer is a great saver of time to the oculist in prison work.

Very high degrees of astigmatism are more common than usually found among ordinary patients. The same is true of myopia and hyperopia. The work in the New York State Reformatory at Elmira, perhaps, has not been done any more thoroughly than in many other institutions. We have, however, carefully kept records of each case examined, and we have been enabled to observe the results after ocular treatment and to approximately give conditions as we found them. I might say records were not kept with the expectation of publishing results, but for reference only. So I apologize for what is lacking.

I fully appreciate that this report loses much of its scientific value for three reasons: First, a cyclopegic was not used in all the cases; second, muscular imbalances ignored unless of such a high degree as to cause diplopia; third, an anisometropia where one eye showed normal vision, with no correction, error in the other eye not corrected even when normal vision could be attained thereby. A large number referred to as hyperopic and myopic should justly be classed under the heading of compound astigmatism, but as it was extremely difficult if not impossible under conditions examined to determine the amount and axis of the astigmatism in many of the cases, all things considered, it was thought best to only correct the error requiring spherical lenses where 20/30 or 20/20 vision could be obtained by such corrections. In other words, I endeavored to correct manifest errors. It was noticeable that of the large number of glasses prescribed for myopia, hypermetropia and astigmatism, the few prisoners who made complaint that the glasses were not suited to their eyes. Apparently they seemed grateful for the partial relief the glasses afforded them, although their error was only comparatively and many times imperfectly corrected.

The 400 cases herewith reported were not selected, but taken as they were referred to the ophthalmologist; in 3,600 other cases I have examined it is believed that the errors of refraction would be in the same proportion as in the 400 cases.

Out of four hundred inmates examined, 36½ per cent., 143 had error sufficient to receive glasses. The 62½ per cent. remaining who did not receive glasses were not all malingerers, for many had an old trachoma, conjunctivitis, etc., and received the proper treatment, so that in all only 31½ per cent. were found with no error or disease. Out of the total number examined, 148 showed some mental defectiveness, 9½ per cent. of which number showed marked manifest refractive error.

Glasses were furnished more frequently to the American born than those of foreign parentage—26¼ per cent. against 10¼ per cent. A cycloplegic (homatropin) was used in 17½ per cent. of all cases examined. Habit and former custom of the institution reason was not used more frequently. I believe all cases at this age should be refracted with a cycloplegic. Element of time and general feeling which prevailed among officials that present work was satisfactory seemed to preclude its universal adoption. In other words, correction of gross errors was considered good enough for prisoners. I think the time is not far distant when every prisoner admitted to our juvenile and intermediate reformatories showing defective eyes will be carefully examined under a cycloplegic.

No apparent relation existed between the kind of crime committed and the ocular defect.

Our figures show that even with correction of manifest refractive errors better work was done in schools, trades and general average was excellent. For example, there was only 1½ per cent of poor progress in trades against 28 per cent. of good. Also in school work there were 7½ per cent. of poor against 16½ per cent. of good. The most striking improvement was in general progress, viz.: 6¾ per cent. of good; almost equal to the progress of the young man with no ocular defect. It will be observed that the ratio of improvement in schools and trades after glasses had been worn was almost equal to those who had no refraction error.

When it was suggested to me that I give a report of work done in the New York State Reformatory, I wondered what was being done along this line in similar institutions. This led to the sending out of a letter of inquiry to 123 penal institutions, juvenile and intermediate reformatories and prisons in the United States and Canada with the following questions:

1. Is the vision taken of each eye on admission of the prisoner?
2. What per cent. show defect in one eye?

3. What per cent. show defect in both eyes?

4. Are glasses prescribed for those suffering from refractive error?

5. Has there been any noticeable improvement in the prisoner's demeanor, conduct or progress in school or work after wearing glasses for correction?

6. Do you have an oculist regularly visit the institution?

7. Is there any state appropriation to pay for expert ophthalmic examinations?

8. What is the average age of the inmates of the institution?

9. What is the average population of the institution?

A very small per cent. not only answered the letters, but wrote me personal letters, expressing their belief, "pro and con," gained from experience, that defective eyes and crime are closely related. Replies from many others gave me the impression that they thought the subject was of too little importance to discuss or investigate. Others made no reply at all.

No answers were received from 63 institutions; these evidently did not make any ophthalmic examinations or else were too indifferent concerning the work to formulate an answer. Thirty-one and one-fourth per cent. of juvenile reformatories take the vision of inmates upon admission, 37 3/11 per cent. intermediate reformatories and prisons, 12 and 4/33 per cent., averaging about 20 per cent., showing a marked neglect in this direction, compared with record of Bertillon measurements, photographs, etc., so carefully taken. Taking as a basis for our statistics replies received from 60 institutions, representing a population of 37,500, at an average age of 22 years, we find that 18½ per cent. showed defective vision in both eyes and 12½ per cent. in one eye, or in all 30 per cent. showed a lowered standard of vision—a most serious handicap to these men, more especially the younger class of criminals.

Averaged from the replies received from the question, "Do you have an oculist visit the institution?" we found that 62½ per cent. do not have an oculist and only 5 per cent. have an optician. It is certainly a safe statement to make that no more than 50 per cent. of reformatories or prisons pay any attention to the condition of the eyes of the inmates, and in most cases the methods of examination and supplying glasses are so ancient and meager that it amounts to but very little. It is no longer good practice to give the prisoner a basket of spectacles and tell him to try them on until he finds a pair he likes. This may seem absurd to you, ophthalmologists, but nevertheless this is the treatment in vogue in many and many a prison in the United States. Is it little wonder that the officials have little faith in the value of glasses as an aid in the treatment of criminals?

That some good work is being done among criminals in refraction can not be gainsaid, for where an oculist does regularly visit the institution refractive errors are corrected in 90 per cent. of cases in intermediate reformatories, 84 per cent. in juvenile and 80 per cent. in prisons. My statistics show that best ophthalmic work is done in intermediate reformatories, and here best results are obtained in conduct, progress, etc., after wearing glasses. Replies to question 5, "Has there been noticeable improvement in the prisoner's demeanor, conduct, progress, school or work?" show:

JUVENILE REFORMATORIES.

Questions answered in the affirmative:	Number.	Per Cent.
Demeanor	3	18 3/4
Conduct	3	18 3/4
School	7	43 3/4
Work	4	25
Question answered in negative	1	6 1/4
Question not answered	8	50

INTERMEDIATE REFORMATORIES.

Question answered in the affirmative:		
Demeanor	5	45 5/11
Conduct	5	45 5/11
School	6	54 6/11
Work	5	45 5/11
Question answered in negative	2	18 2/11
Question not answered	3	27 3/11

PRISONS.

Question answered in the affirmative:		
Demeanor	12	36 4/11
Conduct	12	36 4/11
School	14	42 14/3
Work	15	45 5/11
Question answered in the negative	5	15 5/33
Question not answered	13	39 13/3

RECAPITULATION.

Question answered in the affirmative:		
Demeanor	20	33 1/3
Conduct	20	33 1/3
School	27	45
Work	24	40
Answers in the negative	8	13 1/3
Question not answered	24	40

Considering the age, it is evident that better eye work is necessary in our juvenile schools, as it is right here that better results will be obtained than among old offenders. Still only 37½ per cent. of these have an oculist visit the institution. In my opinion, it is just as necessary that the young criminal should have his refractive error corrected as the best boy in our public schools. It is not likely a boy steals because his vision is imperfect, but rather if defective eyes be at all at fault the damage has been done to his nervous mechanism before any criminal instincts were developed.

Many reasons exist why so little attention is given to the defective eyes of criminals confined in our institutions, one of which is that there are no state appropriations for such work. On the average only 16 per cent. have any appropriation at all, and in these institutions it is entirely inadequate for carrying on any kind of accurate refractive work. In most states this false economy is largely responsible for the lack of proper medical treatment. Not only do the officials decline to obtain the services of trained men, but they also refuse to allow funds to purchase the necessary instruments. The prison hospital is the last place to be equipped and the first place from which twentieth century miracles are expected. Proper refractive work can not be done unless each prisoner is studied individually and under proper surroundings. This means the expenditure of considerable money in these institutions, but the beneficial results will more than compensate for the outlay. It can not be expected that the prison doctor will be a trained oculist. More often he is a general practitioner with whom the prison work is a side issue. Few prisons have resident medical officers. At any rate their time is limited in the prisons and the work is hurriedly done. Every prisoner should have his vision taken on admission, and if found imperfect should be referred to the oculist as soon as possible for investigation in order to correct his error and relieve the eye-strain. This starts the prisoner right and does away with much of his bad behavior. A nervous system harassed by a constant eye-strain is ready to give way under the slightest provocation. Any of us can bear witness to this fact who have suffered from an uncorrected refractive error. Prisoners are not different in this respect than other members of the human family, and when constantly suffering from pain in the head and eyes and other nervous symptoms are in no mood to be trained, educated and disciplined.

Dr. Frank L. Christian, senior physician to the reformatory at Elmira, a most careful observer, extending over a period of years, says: "The general progress of the men after receiving glasses was greatly improved and far better results were obtained than previously." He also says: "The records show that improved vision was in nearly all cases followed by not only better work at school and trades, but also in demeanor." Dr. Christian is not alone in this view, as many physicians to reformatories where conscientious eye work is done observe the same results.

One oculist writes me in reply to the questions thus, viz.: "After being an oculist to an institution for years, it is my opinion that criminals have good sight. 'Eye-strain and its Relation to Crime' does not hold. There is nothing in it. If you will read the transactions of the Academy of Medicine for 1895, you will note that this has been thoroughly discussed and settled. My own personal observation leads me to think that criminals see better than other people. They have to see well to pick pockets, crack safes, etc." Yet that same doctor, in answer to question 5, says: "There have been good results, and I prescribe glasses to all who have a manifest refractive error and regularly visit institutions for that purpose."

The eye defects of prisoners and the inmates of eleemosynary institutions are woefully neglected. In only a few intermediate reformatories are efforts made toward a systematic examination and treatment. The 37,500 inmates of these institutions are not receiving a "square deal" from the state which confines most of them without their consent. Listlessness and indifference is the usual attitude of those in authority and more than a passing appeal is needed to stir them. It behooves every ophthalmologist and every physician as well to use their utmost efforts to secure the proper recognition of the evil effects resulting from eye-strain among the wards of the state.

OCULIST'S REPORT.

The contents consist of a tabulated statement of replies received in answer to letters written in an endeavor to ascertain with some accuracy the conditions existing in penal institutions throughout the United States and Canada in regard to the following nine questions:

1. Is the vision taken of each eye on admission of the prisoner?
2. What per cent. show defect in one eye?
3. What per cent. show defect in both eyes?
4. Are glasses prescribed for those suffering from refractive error?
5. Has there been noticeable improvement in the prisoner's demeanor, conduct or progress in school or work after wearing glasses for correction?
6. Do you have an oculist regularly visit the institution?
7. Is there any state appropriation to pay for expert ophthalmic examinations?
8. What is the average age of the inmates of the institution?
9. What is the average population of the institution?

For convenience the institutions were divided into juvenile reformatories, intermediate reformatories and prisons.

From 123 letters written, 60 replies were received. Some of the letters written in reply answered all of the questions, while others only answered a few of the questions.

QUESTION I.—IS THE VISION TAKEN OF EACH EYE, ON ADMISSION OF THE PRISONER.

JUVENILE REFORMATORIES.

	Number.	Per Cent.
Question answered in the affirmative	5	31 1/4
Question not answered	2	12 1/2
Question answered in the negative	9	56 1/4

INTERMEDIATE REFORMATORIES.

	Number.	Per Cent.
Question answered in the affirmative	3	27 3/11
Question answered in the negative	8	72 8/11

PRISONS.

	Number.	Per Cent.
Question answered in the affirmative	4	12 4/33
Question answered in the negative	28	84 28/33
Question not answered	1	3 1/33

RECAPITULATION.

	Number.	Per Cent.
Question answered in the affirmative	12	20
Question answered in the negative	45	75
Question not answered	3	5

AMETROPIA.

Inmates with hyperopia	68	
Inmates with compound hyperopic astigmatism	27	
Inmates with hyperopic astigmatism	37	
Total where hyperopia predominates		132
Inmates with myopia	37	
Inmates with compound myopic astigmatism	19	
Inmates with myopic astigmatism	18	
		74
Inmates with mixed astigmatism	7	
Inmates with strabismus	10	
		17
Total with ametropia and strabismus		223
Total of inmates with ametropia sufficient for correction		146
Ametropia cases not requiring correction		77

DEGREES OF AMETROPIA.

Inmates with hyperopia less than 2 D.	45	
Inmates with hyperopia over 2 D.	9	
Inmates with hyperopia over 4 D.	14	
Total hyperopia		68
Inmates with myopia less than 2 D.	15	
Inmates with myopia over 2 D.	9	
Inmates with myopia over 4 D.	13	
Total myopia		37
Inmates with astigmatism less than 2 D.	63	
Inmates with astigmatism more than 2 D.	35	
Inmates with astigmatism more than 4 D.	10	
Total astigmatism		108
Total inmates with ametropia		213
Total number of inmates receiving glasses		146

NOTE.—Among the high degrees of refractive errors already recorded we find the following:

Hyperopia above 6 D.	8
Myopia from 8 to 10 D.	10
Astigmatism from 6 to 8 D.	4

MENTALITY.

Defective:		
Glasses furnished	38	
Glasses not furnished	110	
		148
Normal:		
Glasses furnished	108	
Glasses not furnished	144	
		252

NATIVITY.

	Number.	Per Cent.
United States:		
Glasses not furnished	183	
Glasses furnished	105	
	——	288
Foreign:		
Glasses not furnished	71	
Glasses furnished	41	
	——	112

AMETROPIC CASES REQUIRING GLASSES.

Inmates with hyperopia, in one or both eyes, glasses furnished	34	
Inmates with compound hyperopic astigmatism, glasses furnished	22	
Inmates with simple hyperopic astigmatism, glasses furnished	28	
Total number of inmates where hyperopia was predominant, glasses furnished	——	84
Inmates with myopia, in one or both eyes, glasses furnished	26	
Inmates with compound myopic astigmatism, glasses furnished	16	
Inmates with simple myopic astigmatism, glasses furnished	6	
Total number of inmates where myopia was predominant, glasses furnished	——	48
Inmates with mixed astigmatism, glasses furnished	7	
Inmates with convergent strabismus, glasses furnished	5	
Inmates with divergent strabismus, glasses furnished	2	
Total number of inmates where strabismus was predominant, glasses furnished	——	14
Total number of inmates with ametropia and strabismus, sufficient to require correction	—	146
Total number of inmates with anisometropia (or different refraction in each eye) whether glasses were furnished or not		89

CONDUCT.

PROGRESS IN TRADE CLASSES.

	Number.	Per Cent.
Glasses furnished:		
Poor	6	1½
Fair	28	7
Good	112	28
Glasses not furnished:		
Poor	10	2½
Fair	41	10¼
Good	203	50¾

PROGRESS IN SCHOOL OF LETTERS.

	Number.	Per Cent.
Glasses furnished:		
Poor	31	7¾
Fair	50	12½
Good	132	16½
Glasses not furnished:		
Poor	53	14½
Fair	69	17½
Good	132	3

PROGRESS AND DEMEANOR.

	Number.	Per Cent.
Glasses furnished:		
Poor	28	7
Fair	34	8½
Good	84	21
Glasses not furnished:		
Poor	69	17¼
Fair	58	14½
Good	127	31¾

GENERAL PROGRESS.

	Number.	Per Cent.
Glasses furnished:		
Poor	27	6¾
Fair	25	6½
Good	94	23½
Glasses not furnished:		
Poor	72	18
Fair	60	15
Good	122	30½

QUESTION II.—WHAT PER CENT. SHOW DEFECT IN ONE EYE?

JUVENILE REFORMATORIES.

	Number.	Per Cent.
Question not answered	12	75
Question answered (2.4, 18, 9, 5 per cent.)	4	25
Average		8 3/5

INTERMEDIATE REFORMATORIES.

Question not answered	8	72 8/11
Question answered (9.75, 90, 1 per cent.)	3	27 3/11
Average showing defect in one eye		33 29/50

PRISONS.

	Number.	Per Cent.
Question not answered	27	81 9/11
Question answered (20, 5, 2, 2, 1 13/47, 7 per cent.)	6	18 2/11
Average showing defect in one eye		6 10/47

RECAPITULATION.

Question not answered	47	78 1/3
Question answered	13	21 2/3
Per cent. showing defect in one eye, as averaged from answers received		12 3/20

QUESTION III.—WHAT PER CENT. SHOW DEFECT IN BOTH EYES?

JUVENILE REFORMATORIES.

	Number.	Per Cent.
Question not answered	12	75
Question answered (8, 10, 15, 15 per cent.)	4	25
Average showing defect in both eyes		12

INTERMEDIATE REFORMATORIES.

Question not answered	8	72 8/11
Question answered (36½, 60, 3 per cent.)	3	27 3/11
Average showing defect in both eyes		33 1/6

PRISONS.

Question not answered	26	78 26/33
Question answered (10, 5, 10, 6, 20, 24/47, 14 1/10 p. c.)	7	21 7/33
Average showing defect in both eyes		9 37/100

RECAPITULATION.

Question not answered	46	75 2/3
Question answered	14	23 1/3
Per cent. showing defect in both eyes, as averaged from answers received		18 137/300

QUESTION IV.—ARE GLASSES PRESCRIBED FOR THOSE SUFFERING FROM REFRACTIVE ERROR?

JUVENILE REFORMATORIES.

	Number.	Per Cent.
Question answered in the affirmative	13	81 1/4
Question answered in the negative	1	6 1/4
Question not answered	2	12 1/2

INTERMEDIATE REFORMATORIES.

Question answered in the affirmative	10	9 10/11
Question answered in the negative	..	..
Question not answered	1	9 1/11

PRISONS.

Question answered in the affirmative	28	84 28/33
Question answered in the negative	3	9 1/11
Question not answered	2	6 2/33

RECAPITULATION.

Question answered in the affirmative	51	85
Question answered in the negative	4	6 2/3
Question not answered	5	8 1/3

QUESTION V.—HAS THERE BEEN NOTICEABLE IMPROVEMENT IN THE PRISONERS' DEMEANOR, CONDUCT, OR PROGRESS IN SCHOOL, OR WORK AFTER WEARING GLASSES FOR CORRECTION OF OPTICAL DEFECT?

JUVENILE REFORMATORIES.

	Number.	Per Cent
Question answered in the affirmative:		
Demeanor	3	18 3/4
Conduct	3	18 3/4
School	7	43 3/4
Work	4	25
Question answered in the negative	1	6 1/4
Question not answered	8	50

INTERMEDIATE REFORMATORIES.

Question answered in the affirmative:		
Demeanor	5	45 5/11
Conduct	5	45 5/11
School	6	54 6/11
Work	5	45 5/11
Question answered in the negative	2	18 2/11
Question not answered	3	27 3/11

PRISONS.

	Number.	Per Cent.
Question answered in the affirmative:		
Demeanor	12	36 4/11
Conduct	12	36 4/11
School	14	42 14/33
Work	15	45 5/11
Question answered in the negative	5	15 5/33
Question not answered	13	39 13/33

RECAPITULATION.

	Number.	Per Cent.
Question answered in the affirmative:		
Demeanor	20	33 1/3
Conduct	20	33 1/3
School	27	45
Work	24	40
Question answered in the negative	8	13 1/3
Question not answered	24	40

QUESTION VI.—DO YOU HAVE AN OCULIST REGULARLY VISIT THE INSTITUTION?

JUVENILE REFORMATORIES.

	Number.	Per Cent.
Oculist	6	37 1/2
Optician	..	..
Question answered in the negative	8	50
Question not answered	2	12 1/2

INTERMEDIATE REFORMATORIES.

	Number.	Per Cent.
Oculist	5	45 5/11
Optician	1	9 1/11
Question not answered	5	45 5/11

PRISONS.

	Number.	Per Cent.
Oculist	12	36 4/11
Optician	2	6 2/33
Question answered in the negative	18	54 6/11
Question not answered	1	3 1/33

RECAPITULATION.

	Number.	Per Cent.
Oculist	23	38 1/3
Optician	3	5
Question answered in the negative	31	51 2/3
Question not answered	3	5

QUESTION VII.—IS THERE ANY STATE APPROPRIATION TO PAY FOR EXPERT OPHTHALMIC EXAMINATION?

JUVENILE REFORMATORIES.

	Number.	Per Cent.
Question answered in the affirmative	4	25
Question answered in the negative	10	62 1/2
Question not answered	2	12 1/2

INTERMEDIATE REFORMATORIES.

	Number.	Per Cent.
Question answered in the affirmative	1	9 1/11
Question answered in the negative	10	90 10/11
Question not answered	..	..

PRISONS.

	Number.	Per Cent.
Question answered in the affirmative	5	15 5/33
Question answered in the negative	28	84 28/33
Question not answered	..	..

RECAPITULATION.

	Number.	Per Cent.
Question answered in the affirmative	10	16 2/3
Question answered in the negative	48	80
Question not answered	2	3 1/3

QUESTION VIII.—WHAT IS THE AVERAGE AGE OF INMATES OF THE INSTITUTION?

JUVENILE REFORMATORIES.

	Number.	Age, years.
Question not answered	3	..
Average age, as averaged from answers received	..	14

INTERMEDIATE REFORMATORIES.

	Number.	Age, years.
Question not answered	1	..
Average age, as averaged from answers received	..	21

PRISONS.

	Number.	Per Cent.
Question not answered	7	..
Average age, as averaged from answers received	....	32

RECAPITULATION.

Juvenile reformatories	..	14
Intermediate reformatories	..	21
Prisons	..	32
Average age of all prisoners	..	22 1/3

QUESTION IX.—WHAT IS THE AVERAGE POPULATION OF THE INSTITUTION?

JUVENILE REFORMATORIES.

	Number.	Average Population.
Question not answered	2	...
Average population from answers received	..	320

INTERMEDIATE REFORMATORIES.

Question not answered	1	...
Average population from answers received	..	617

PRISONS.

Question not answered	2	...
Average population from answers received	..	737

RECAPITULATION.

Average population of all institutions	..	524 2/3
Highest juvenile reformatory population	..	750
Highest intermediate reformatory population	..	1,510
Highest prison population	..	2,100

CONDITION ON ADMISSION TO THE NEW YORK STATE REFORMATORY AT ELMIRA OF FIVE THOUSAND INMATES RECEIVED BETWEEN 1900-1906.

Average age .... 20¾ years.

	Number.	Per Cent.
Addicted to the use of alcohol	2,735	54 7/10
Suffering from syphilis	163	3 1/4
Suffering from tuberculosis	75	1 1/2
Suffering from defective eye-sight	675	13 1/2
Suffering from defective hearing	281	5 5/8

Average population 1,510

REPORT, EAR, NOSE AND THROAT.

.... *190*

To Acting General Superintendent:

Name .... *No.* ....

Complaint ....

....

Hears ordinary { *R.* ....

conversation. { *L.* ....

Pathological changes ....

....

Remarks ....

....

....

.... *M.D.*

OCULIST'S REPORT.

.... *190*

To Acting General Superintendent:

Name .... *No.* ....

Complaint ....

....

Inmate's statement { *R.* .... } *Glasses worn* *R.* ....

of vision. { *L.* .... } *L.* ....

....

Distance { *R.* ....

refraction. { *L.* ....

....

Javal's ophth. { *R.* ....

{ *L.* ....

....

Diagnosis. ....

....

Treatment and remarks ....

....

.... *M.D.*

OBSERVATIONS ON HUE PERCEPTION.

F. W. Edridge-Green, M.D., F.R.C.S.

These observations were made with an instrument by means of which the exact size of a portion of the spectrum which appeared monochromatic was ascertained when it was isolated from the adjacent portions. Hue perception was found to be most accurate in the blue and the yellow regions, though in most it was more accurate in the yellow region. Then there was a gradual diminution toward the center and ends of the spectrum. Green came next, then violet and lastly red. The facts were in accordance with Edridge-Green's theory of color perception and predicted by it, namely, that color perception of different individuals varies with the development of a color perceiving center in the brain, that those with a greater development of this center see more colors (points of difference) than those with a less development, and that colors appear in a regular order at the successive points of difference in a straight series.

DOUBLE RUPTURE OF THE SCLERA DUE TO THE BLOW OF A FIST.*

Edward A. Shumway, M.D.

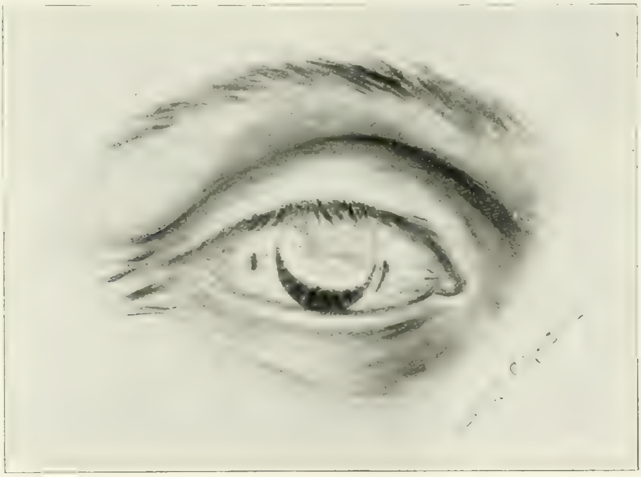
PHILADELPHIA.

(Illustrated.)

Rupture of the sclera, as the result of a blow by a blunt object, is a common occurrence. Statistics of collected cases have shown that in the majority of cases the location of the rupture is in the anterior part of the eyeball, usually from two to five millimeters back of the corneo-scleral junction, and the course of the tear is most frequently parallel to the curve of the limbus. Double or multiple rupture of the sclera, however, must be very unusual. No mention of such a case is to be found in Praun's comprehensive book, "Die Verletzungen des Auges," published in 1899; and a rather careful search of the literature has failed to show any since then. The case which I show is, therefore, worthy of record. The patient was seen at the University Hospital, during the absence of Dr. deSchweinitz, and I am indebted to him for permission to bring him before you. The history is as follows:

*** Read at the meeting of the Section on Ophthalmology of the College of Physicians of Philadelphia, Oct. 16, 1906.**

R. G., aged 51, laborer, was admitted to the University Hospital Aug. 18, 1906. During an altercation with a fellow-workman that morning, he had been struck in the right eye with the fist. So far as he knows the man wore no ring and had no sharp instrument in his hand that could have caused a penetrating wound. When I saw him four hours after the accident the eye had been cleansed and a banadge applied by the resident physician. I found the eyeball soft, the anterior chamber filled with blood, and the vitreous escaping through two openings in the sclera. The larger one was 6 mm. long and was situated on a level with the horizontal meridian of the cornea, 3 mm. back of the inner margin of the cornea. The other was at a point exactly opposite, 4 mm. to the temporal side of the corneal limbus and on the same level. It measured 3 mm. in length. Through both openings frayed, pigmented tissue was hanging, representing portions of either iris or ciliary body. Vision was reduced to doubtful light perception. No details could be seen of the iris or lens, and the vitreous was probably filled with blood. The wounds were carefully cleansed, the prolapsed vitreous and pigmented tissue were trimmed off, atropin and argyrol instilled, and the eye bandaged. Ice-cold compresses were applied over the bandage for twenty-four hours, and the usual treatment with calomel in divided doses, followed by a saline purge, and salicylates in large doses were instituted. The wounds in the sclera gradually closed, the tension rose to normal, and the blood in the anterior chamber began to disappear. A low grade cyclitis, however, set in after ten



Double rupture of the sclera. Iridodialysis above. Remains of Hyphema below.

days, and was treated by hot compresses, leeching, dionin and subconjunctival injections of salt locally, salicylates and mercury being also administered. The patient complained of very little pain, but after six weeks enucleation was advised in fear of sympathetic trouble. This he declined, and the eye gradually quieted, so that he was allowed to leave the hospital on October 2, promising to return daily to the dispensary.

At the present time, two months after the accident, the condition, as illustrated by the sketch made by Mrs. Chase, is as follows: The two scars, partly pigmented, can be seen on either side of the eyeball, just back of the corneal limbus. The blood is absorbed from the anterior chamber, except at the lower one-sixth, where it lies as a dark red line across the iris. Above it a band of iris tissue runs upward and outward, and shows near the upper extremity the position of the pupil. The entire upper and outer half of the iris has been torn loose, and either thrown backward into the vitreous cavity, or out through the scleral ruptures. The cornea shows an interstitial haze, which obscures finer details behind it, but floating membranes can be seen above hanging in the vitreous from the ciliary region. The lens apparently swings by the zonule above and waves to and from with the movements of the eye, but it can not be seen clearly. No red reflex is obtained with the ophthalmoscope.

The case then shows the ordinary accompanying conditions of rupture of the sclera: intraocular hemorrhage, iridodialysis and subluxation of the lens. The point of interest, however, is the occurrence of the double rupture, which, so far as I know, is unique. The eye is, of course, not yet free from danger to its fellow, in view of the fact that many cases of sympathetic ophthalmia have resulted from such injuries. But it has lost its tenderness, and the other eye has remained entirely free from irritation, so that we have agreed to allow him to retain it, with the promise to keep under constant observation.

TWO CASES OF INTRAOCULAR TUMOR IN WHICH THE TRANSILLUMINATOR WAS MISLEADING.*

George F. Suker, M.D.
CHICAGO.

The transilluminator, no doubt, is of very great value in making a diagnosis as to the presence or absence of an intraocular tumor under certain conditions. Not as much fault can be found with the ocular transilluminator as with the sinus transilluminator. This is an obvious fact from an anatomic standpoint, the eye being easily and readily approached and not surrounded by a dense, bony structure as are the sinuses. For this reason, the transilluminator is much more accurate and reliable for the ophthalmic surgeon than for the rhinolaryngologist.

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* Read before the Chicago Ophthalmologic Society, Oct. 9, 1906.

The ocular transilluminator will not fail in demonstrating the presence or absence of a tumor when the pupil can be well dilated and the vitreous is not filled with a hemorrhage of any extent, or when the pupil is sufficiently large to admit or emit large pencil of light. It matters not where the intraocular tumor is situated; a shadow can be seen and readily detected provided the two conditions above mentioned obtain and not a trace or but a scant trace of hemorrhage visible in the vitreous. Should, however, the tumor be accompanied by more or less extensive intraocular hemorrhages, then the transilluminator will fail in reflecting a shadow of the tumor. Particularly is this true in cases of fresh hemorrhages and also true of hemorrhages which have been slightly or not at all absorbed. Because of the hemorrhage, either fresh or partly ababsorbed, an accentuated red fundus reflex is nearly always obtained, and thus obscures the shadow caused by the tumor.

The negative results obtained in such conditions are not dependent upon the size of the tumor or its density. The above points have been well demonstrated by the two specimens which I now take the liberty of passing around. The one is a large chorioidal sarcoma, the other is a case of detached retina with extensive exudates which have taken on organization of a malignant character. In this latter case there were numerous dense hemorrhages, while in the former there were but a few hemorrhagic areas. In either case a good pupillary dilatation was obtainable, therefore no difficulty experienced with the admission and emission of transmitted light. In the latter case the transilluminator failed absolutely to reflect the slightest shadow because of the numerous hemorrhages, hence it almost led to a faulty diagnosis. In the former there was no difficulty experienced in making out the greatest portion of the tumor. It consisted of one large growth and several smaller ones. The smaller ones were covered with hemorrhages, which extended into the vitreous and obscured their view, while the larger portion was free from this. No trouble was experienced in seeing the shadow of the larger portion of the tumor because no hemorrhage interfered with the transmission of light through the vitreous.

The density of the growths in either eye was about the same, therefore no difficulty ought to have been experienced in the transmission of light. In either case a definite diagnosis ought to have been possible with the transilluminator, as a maximum dilatation of the iris was obtainable.

The point I wish to make in demonstrating these two cases is that we have heard it said in this Society that the transilluminator, provided the pupil could be dilated, would positively prove or disprove the presence or absence of an intraocular tumor. These two specimens demonstrate that this is not so. Several of the members of this society saw these two cases in consultation with me. It might be said that no great dependence is to be placed upon the transilluminator when the vitreous is permeated with blood.

REPORT OF A CASE OF METHYL ALCOHOL AMBLYOPIA WITH CONSECUTIVE ATROPHY.*

F. A. Phillips, M.D.

CHICAGO.

F. P., aged 53. First examined in consultation with Dr. H. R. Hammond Jan. 10, 1906, who had seen him the previous day and made a diagnosis of wood-alcohol poisoning. The history obtained was that during the forenoon of January 8 he had been about his work, which consisted of caring for the storeroom and distributing the paints and oils and alcohol used in a paint factory. That he had while drawing wood alcohol spilled quite a quantity, probably a quart of it, on the floor and on one of his feet, after which he continued at work some hours in the room. Shortly after noon he felt badly, was dizzy and stated that objects did not look right to him. About 3 p. m. he started home, at which time his hands and objects about him had a dim gray appearance. On arriving home he was given a hot drink containing some alcohol, after which he fell asleep, and on being awakened a few hours later found himself totally blind.

On the afternoon of the same day I found him with moderately dilated pupils, staring expression, loss of pupillary reflex and total loss of light perception. The external appearance of the eye was normal aside from moderate injection of the bulbar conjunctiva; the fusion normal and the ocular movements unimpaired. Firm pressure over either eye elicited sharp complaint of deep tenderness in the orbit. Ophthalmoscopic findings were normal fundi, aside from the fulness of the central retinal vessels, more especially the veins. The edges of the optic discs were not blurred and swelling was absent.

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* Read before the Chicago Ophthalmological Society, Oct. 8, 1906.

He was given pilocarpin sweats, with general measures to promote elimination; later strychnia and iodids were added to the treatment. Locally, dionin and pilocarpin solution were used, under which the pupils promptly contracted. About the tenth day of the treatment he had a slight return of his visual acuity, evidenced by his seeing a large white object passing in good light. In February his vision improved to counting fingers at about 4 feet. It again began to fail progressively, and by July 16 complete loss had again occurred. With the progress of the atrophy, which became manifest in about two weeks, a gradual diminution in the size of the central retinal arteries was visible, which has progressed until at the present time they are less than one-half the size of the veins, which seem about normal in appearance.

This case is, it seems to me, one in which a retrobulbar neuritis occurred with early acute swelling and strangulation sufficiently near the globe to impair the return circulation through the central retinal vein, but not sufficient to produce exudate in the papilla or retina. In this connection I wish to show a microscopic specimen of *hydrops vaginæ nervi optici* with insterstitial edema of the optic nerve trunk, which has been kindly placed at my disposal by Dr. A. W. Boot of Evanston. This specimen is of especial interest in that it was taken at autopsy from a case that had died from poisoning, probably methyl alcohol taken in bay rum.

If this case is, as it seems, a true case of wood-alcohol poisoning, it explains the rather sudden shutting off of vision in these cases and, in at least this one class of cases, a reason for the return of vision and its later loss.

Dr. Hotz holds that, clinically, the clearing of vision is due to the relief of the pressure on the nerve fibers and that the subsequent atrophy comes from the changes within the nerve trunk itself. Dr. de Schweinitz claims that on animals the primary change is in the ganglion cell layer. Drs. Wood and Buller say: "On the whole, it seems highly probable that the ocular changes in methyl alcohol poisoning are mainly a peripheral neuritis, affecting in some cases the nerve trunk only, sometimes the retinal fibers only, and sometimes both these tissues."

CORNEAL LESIONS IN SNOW BLINDNESS.*

G. L. Strader, M.D.

CHEYENNE, WYO.

In April, 1905, during the examination of a case of snow blindness, I detected a slight lessening of corneal luster. I was much surprised to find that fluorescein stained an area corresponding in shape to the palpebral aperture measuring about 1 mm. in diameter at the broadest part and about 5 or 6 mm. long. Sending the patient to the hospital I treated him as I do an ordinary non-infected traumatic corneal erosion in which there is marked pain, congestion, etc.—irrigation with saturate solution boracic acid, atropin, heat and a bandage. Twenty-four hours later he was practically well; a recovery which is much more rapid than is usually the case in snow blindness of moderate severity, when treated with cold applications, cocain, etc.

Within the next few days I saw two other cases in which I found the same corneal condition, and which I treated with similar results. Last winter I saw three additional cases, in none of which could loss of corneal epithelium be discovered until stained with fluorescein.

While I had not seen before many cases of snow blindness, I could not remember of seeing, in the text-books, corneal erosions mentioned as part of the pathology; a search through the literature at my command gave me no information. Thinking that perhaps I had stumbled onto something new I wrote to Dr. Harold Gifford, with whom I was formerly associated as assistant, describing my observations, and asked if the condition had been noted by others. He replied that in the spring of 1886 his colleague, Dr. Graddy, now of Nashville, Tenn., had made the same observation and collected material for a paper which was read at the 1886 meeting of the Nebraska State Medical Society and published in the transactions for that year. He also stated in his letter that he (Dr. Gifford) had several times since then called attention to Graddy's discovery, but that no one had ever taken notice of his remarks.

Graddy, in accounting for the apparent retinal lesions, claims that the blindness is caused not by traumatic retinal changes, but to loss of color perception by a decomposition of erythropsin in excess of its reproduction. Erythropsin is the chromatic perceptive principle of the retina, which is generated in darkness and decomposed by light. Hence the snow blind individual is blind only in the sense that he perceives only white light. In support of his theory he gives the history of six duck hunters, all equally exposed, and in whom the first symptom, the impairment of vision, was the same. One of the party observed that he could see the geese only when they were flying, that they were indistinct and appeared white. This observation developed the fact that they were all affected in the same manner. Soon followed obscuration of vision for all objects. The blue of the sky was the last color to fade, for they could still see indistinctly the forms of the geese, which appeared white when flying above the horizon after they had lost all power of perceiving objects below the horizon, even the guns in their hands. Two days later he examined two of these men. Their eyes presented all the symptoms usually mentioned. V = outlines of large objects; color perception entirely abolished; retina perfectly normal. The cornea showed loss of epithelium as described in my cases. He treated them much in the same way that I treated mine.

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* Read before the Wyoming State Medical Society, at Casper, Sept. 25, 1906.

Up to the time Dr. Graddy wrote his article, snow blindness had been attributed to the effects of intense light upon the retina, which, by reflex action, produced the other symptoms, viz.: conjunctivitis, photophobia, blepharospasm and ciliary neuralgia, and he was unable to find a single writer who mentioned corneal lesions as a primary cause of the inflammatory condition. Nearly all of the symptoms of snow blindness can easily be accounted for by the corneal condition.

Most of the authors give but a few lines to the consideration of snow blindness and say very little or nothing concerning treatment. Just recently I found in Fuch's text-book, second edition, 1896, the following: "In violent cases of this sort there are found besides inflammation of the conjunctiva, contraction of the pupil, also opacities and erosions of the cornea." But evidently he considers the corneal conditions of minor importance, for he dismisses the subject by saying: "In spite of the violent symptoms which they present in their beginning, generally get well within a few days without further bad results."

Posey and Wright have the following to say: "Snow blindness may take the form either of day blindness or night blindness. It is accompanied often by inflammation of the conjunctiva or cornea, intense photophobia and spasm of the lids, although it may not be accompanied by inflammatory conditions. It begins by gradual or rapid darkening of the fields and continues as long as the eyes are exposed to the light. Protection by means of smoked glasses or otherwise relieve the condition."

Swanzy says: "Snow blindness produces in some persons a peculiar form of ophthalmia, which may be followed by temporary or even permanent amblyopia; later on chemosis with small opacities or ulcers of the cornea comes on. The condition passes off in a few days without leaving any permanent bad results, except in rare cases, where there may be some secondary hyperemia of the retina." He recommends cold applications and cocain for treatment. The cocain treatment may account for the ulcers which he has observed in the later stage of the disease.

Nettleship calls snow blindness a chorio-retinitis, which he says is localized in the macular region. He has nothing to say about treatment.

While the few cases I have seen do not furnish sufficient material by which set rules for treatment could be laid down, yet it would seem that the treatment used in my cases should give far better results than that ordinarily used; that the use of cocain for the control of pain would serve only to increase the damage already done to the cornea.

Occasionally we see patients who complain that since an attack of snow blindness, perhaps many years ago, their vision has been less acute. This slight diminution of vision may not always be imaginary on the patient's part, but may be due to slight central corneal opacity, remaining after the corneal lesion has healed, rather than to retinal lesions.

ADDENDUM.

In the last issue of *Ophthalmology* (October, 1906) reference is made to an article by Kilkowe, which appeared in *Wiener Med. Wochenschrift*, April 21, 1906, "Keratitis Solaris Exfoliativa." According to the reviewer, the author mentions "Ribbon-shaped opacity of the cornea which corresponded to the small aperture of the lids."

APPARENT CURE OF A CASE OF SPRING CATARRH.*

H. Gradle, M.D.

CHICAGO.

Spring catarrh is so relatively infrequent and so rebellious to treatment that it seems worth while to record an apparent cure accidentally observed. Up to the present no cures are on record, unless it be cases recently treated by x-rays. Ring reviewed before the American Medical Association in 1906[1] some four cases reported by Allport and others, apparently cured by long-continued radiation and a few others improved, but the experience is as yet very limited. The disease is known to cease spontaneously after a variable period of years, at least in some patients. As far as I have been able to learn such a spontaneous cure does not occur abruptly during the period of activity in summer.

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* Read before the Chicago Ophth. Society, Oct. 9, 1906.

[1] Jour. A. M. A., Sept. 29, 1906.

The following observation is decidedly suggestive of a cure brought about by the treatment: Miss S., now about 36 years of age, has had typical spring catarrh with lesions limited to the lids every summer since 1892. During the cold season she was formerly entirely normal, but within the last few years the lesions have only receded but not disappeared completely in winter. No treatment ever gave her more than slight relief. She could, however, get perfect comfort in summer in Colorado or the upper part of Lake Michigan. Early in July of this year, while complaining as badly as ever, she went to Hot Springs, Ark., and began to use the alum spring water as eye water about a dozen times per day. At a previous occasion she had found no relief whatsoever from the climate of Hot Springs during the summer. Within two or three weeks after using the alum spring water her itching and smarting began to subside and soon after left her completely. After some six weeks she returned to Chicago subjectively cured, continuing, however, the use of the water. The warm weather of August and September did not bring on any return of symptoms. On examining the lids during the last week of August and again three weeks later, I found the palpebral conjunctiva absolutely smooth in the left eye, while in the right eye a few small vascular follicles were seen at the junction of tarsal and retrotarsal areas. The conjunctiva of the upper lids had the yellowish, smooth, slightly thickened appearance (without cicatrices), characteristic of an old though cured spring catarrh.

The government analysis of the alum spring water shows: Iron alum, 0.13; sodium sulphate, 11.77; magnesium bicarbonate, 29.14; calcium bicarbonate, 184.71; silica, 45.02, in a million parts, with mere traces of some other salts. This chemical composition does not explain at all its presumable therapeutic influence. According to recent determinations, however, to which I could not get access, the alum spring, like some other of the mineral waters of Hot Springs, is strongly radioactive. In view of the alleged influence of *x*-rays upon the lesions of spring catarrh, the possibility of a similar effect by a radioactive water seems worth investigating. Unfortunately, the radioactivity of mineral waters "decays" so rapidly that it is only available while the water is fresh.

I would like to add a few remarks regarding the presumable cause of spring catarrh. In my first publication in 1886 I pointed out the analogy of the disease to hay fever. Like the latter, it is active only during the warm season and quiets down whenever the patient seeks a resort exempt from hay fever. As the pollen origin of hay fever has now been definitely proven by Dunbar, it has seemed plausible to me that spring catarrh, too, may be due to the poisonous influence of pollen in the air upon a conjunctiva of special and exceptional susceptibility. I have accordingly tested Dunbar's pollantin in the disease, by dusting it in or dropping in a solution. I have only been able to try it in three cases, none of which stayed under observation sufficiently to yield a decisive result. All three reported relief following the use of pollantin at the time, which is all that could be expected. These observations do not seem to me conclusive, and I have not made the more crucial test of applying the pollen poison directly to the conjunctiva.

Reports of Societies.

COLORADO STATE MEDICAL SOCIETY.

SECTION ON OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

Thursday, Oct. 11, 1906.

DR. EDWARD JACKSON, Chairman.

1. Report of a Case of Acute Suppurative Otitis Media and Mastoiditis. Operation; Thrombosis of Sigmoid Sinus, Operation; Excision of Internal Jugular; Recovery. By William C. Bane, M.D., Denver.

Abstract.—Patient, aged 19 years, examined 55 hours after inflammation began: membrana tympani incised, followed by free discharge of blood serum. Discharge contained streptococci. Pain in the ear and mastoid with elevation of temperature persisted. On the 8th day of inflammation I operated on the mastoid. The cells were grayish and contained pus. On the morning of the 5th day after operation the pulse was 65 and the temperature 99° F., yet the wound had a pale appearance. Evening temperature was 101.4. On the sixth day at noon he had a severe chill; pulse 120, temp. 104° F. Tenderness over the lateral sinus and internal jugular vein. At 8 p. m., sinus was uncovered and incised, exposing clot; internal jugular excised and thrombus removed from sinus by Dr. Lyman. Patient left the hospital the 24th day after mastoid operation.

Discussion opened by C. B. Lyman, M.D., and John M. Foster, M.D.

2. The Deviated Septum in the Causation of Respiratory Diseases. A. R. Solenberger, M.D., Colorado Springs.

Abstract.—Etiology. Nature of the forces which cause septal deformity. Deformity of the upper maxilla. Predisposing or indirect causes. Exciting or direct causes. Modus operandi of the indirect causes. Heredity. Evolution of excessive adenoid tissue. Modus operandi of the direct causes. Traumatism. Climate. Bad hygiene. Mouth breathing. The deviated nasal septum as an active cause of respiratory diseases. The universal anatomico-physiologic principles of the breathing apparatus—its chief purpose. The basic law upon which the health and disease of the respiratory tract rest: "That more or less unilateral nasal respiration produces more or less unilateral ventilation of all respiratory cavities"—unequal distribution of air, in spite of the law of compensation, does occur. Effects produced by nasal stenosis. Immediate—atmospheric insufficiency. Simple inflammation of the superficial tissue. (2) Remote—chronic inflammation of the deeper tissues. Tissue hypertrophy. Tissue atrophy—tissue degeneration. Tissue infection. Ear. Lungs.

Discussion opened by Dr. Robert Levy, Denver.

3. Headaches of Nasal Origin. W. R. Hoch, M.D., Pueblo.

4. Ocular Headaches. Edmund W. Stevens, M.D., Denver.

Abstract.—The relation of eye-strain to headaches and other neuroses first pointed out by Mitchell and Thomson thirty years ago. The medical profession slow to appreciate the importance of the subject. Eye-strain the most common cause of headache in the otherwise healthy. The conservative view of the question. The view of the enthusiast. Ocular headaches come on at any age, but are very frequent from 6 to 20 years of age and again with beginning presbyopia. They are indistinguishable in character and position from headaches due to any other agency. The relation of eye-strain to migraine. The adjustment of proper glasses does more for the relief of migraine than any other treatment. The importance of carefully measuring errors of refraction under a mydriatic.

Discussion opened by Dr. H. T. Pershing and Dr. S. D. Hopkins, Denver.

5. Importance of Early Recognition and Treatment of Squint. John M. Foster, M.D., Denver.

Abstract.—Parents and physicians often fail to detect squint on account of its periodicity and they frequently are misled between squint and paralytic muscular troubles. The etiologic factor in the majority of cases of cross-eye is an error of refraction. The difficulties in determining these errors have been greatly simplified by the use of object test cards, cycloplegia and retinoscopy. The importance of early detection of refractive errors, the application of devices for exercising the weakened muscles, thereby increasing their strength sufficiently to enable them to maintain the correct position of the eye after it has once been obtained. The conservative methods are especially insisted upon, as but very few young children should be operated upon for squinting eyes. The percentage of cases cured where properly fitted and fitting glasses are used is large if combined with proper exercise for the weakened muscles. In advanced unilateral convergent squint there is always a loss of vision in the deviating eye, frequently of a high degree. It is in these cases, especially in young children, that our ingenuity is taxed to not only preserve what vision there is in the poor eye, but to increase it by correction of refractive errors and use of cycloplegics.

Discussion opened by Dr. E. C. Rivers, Denver.

BRITISH MEDICAL ASSOCIATION.

SECTION ON OPHTHALMOLOGY.

Toronto Meeting, Aug. 21 to 25, 1906.

PRESIDENT'S ADDRESS.

Mr. Marcus Gunn, F.R.C.S., London, the president, in his introductory remarks, recalled the loss that Canadian ophthalmology has sustained in the death of Prof. Frank Buller, Montreal, whose work at Moorfields and Montreal is so well known and who recently in collaboration with Dr. Casey Wood, of Chicago, brought to the notice of the profession the effects of poisoning by wood alcohol in a memoir already classical. He welcomed heartily the visitors and especially the brethren from the United States.

SYMPATHETIC DEGENERATION.

Mr. Freeland Fergus, surgeon to the Glasgow Eye Infirmary, submitted a paper on a condition to which he had tentatively given the name of Sympathetic Degeneration. He said that the affection to which he wished to call attention had first been described by him at a former meeting of the Association. The present contribution referred to twelve cases which he had seen at the Glasgow Hospital within the last two years. In many cases in which one eye was severely damaged the other underwent a degenerative process which was characterized by a concentric contraction of the field of vision. In some cases this contraction was extreme; in one of the twelve recently reported it was within 15° of the fixation point. In most of the eyes thus affected there was a diminution of the visual acuteness and in a few there was severe neuralgic pain both on the side of the injured organ and on the other.

The condition was not accompanied by any obvious inflammation of the eye undergoing degeneration and, although the loss of vision was sometimes considerable, yet it never led to blindness. So far as Mr. Fergus's observations had gone, the patient always retained a fair amount of sight, quite sufficient for the ordinary purposes of life.

In his opinion, if the field once became contracted, it never recovered. The fields of vision of the twelve patients were grouped into a table by the method of polar co-ordinates.

DISCUSSION ON LACRIMAL STRICTURE.

The discussion was opened by Dr. A. B. Osborne of Hamilton, followed by Dr. Risley of Philadelphia and Dr. Theobold of Baltimore. After these gentlemen, the discussion was declared opened and many availed themselves of the opportunity. One was struck by the paucity of the information given with regard to the value of extirpation of the lacrimal sac as a curative treatment of lacrimal stricture. One received the impression that the method had not received the favor that it has done in England and that American ophthalmologists were inclined to look upon it as a measure to which resort should only be had when treatment by other well-known methods had failed or which experience had shown would fail.

Dr. Risley urged the importance of anatomical anomalies in the nose and bony nasal duct as a predisposing cause of lacrimal obstruction, and made a plea for the conservative treatment of the affection. He believes that the obstinate nature of the obstruction so often seen is not infrequently favored by the methods of treatment adopted. He advocated the irrigation treatment as often sufficient. Cautious probing combined with irrigation in others. The drainage apparatus should not be regarded as an open drain pipe, but as a delicate pump, the physiologic function of which could be readily destroyed by the use of large probes. It was sometimes necessary to slit the canaliculus, but the incision should never be carried into the sac. In chronic dacryocystitis the great value of irrigation with weak solutions of iodin for the treatment of the thickened walls of the sac or duct was urged. Dr. Risley has found that the prognosis in disease of the drainage system was much more favorable than before the adoption of the conservative method described.

Mr. Freeland Fergus thought that in all cases of recurrent dacryocystitis the sac should be removed, and he suggested the advisability of removing the lacrimal gland at the same time.

Dr. Edward Jackson, of Denver, referred to infantile dacryocystitis and its amenability to simple treatment by lotions and repeated pressure over the sac.

Dr. Hill Griffith of Manchester was of opinion that infantile cases were due to a membranous obstruction at the nasal end of the canal, causing retention of normal secretion.

Dr. Webster Fox of Philadelphia spoke of the special styles that he used and remarked that no special line of treatment could be assigned, but different cases required different methods.

Dr. Burton wished to draw attention to sand and dust as a causative factor of many cases of lacrimal affections. He also wished to record his favorable opinion of a 20 per cent. solution of argyrol as a curative agent when injected into the sac.

Dr. Weeks of New York was of opinion that gold was the only suitable material for lacrimal styles and thought that the use of styles was the best method in cases unsuitable for the extirpation of the sac.

Dr. Burnham of Toronto disapproved of the use of large probes to which he had given a prolonged trial. In suitable cases extirpation of the sac was the correct course, but treatment by irrigation and the wearing of styles was also successful. He did not advise repeated probings in any case.

Dr. Baker of Cleveland only extirpated the lacrimal sac in cases where fluid could not be made to pass into the nose.

Dr. Walter Pyle recorded a case of violent reaction following the injection of the lacrimal sac with a rather weak solution of protargol.

Dr. Connor of Detroit had found styles unsatisfactory, considering it easier to teach the patient or his doctor to pass probes regularly. He had found Dr. Theobald's treatment with large probes most useful. He approved of extirpation of the sac when the stricture could not be cured by these means.

Dr. Colin Campbell of Toronto thought extirpation of the sac the best method in purulent cases.

TENOTOMY OF THE INFERIOR OBLIQUE AND CONSIDERATIONS OF THE CONDITIONS THAT MAY CALL FOR THE OPERATION.

By Alexander Duane, M. D., New York. After describing technic of operation, which consists in a division of the tendon of origin through a cutaneous incision, Dr. Duane discussed the condition which may call for the operation, viz.:

1. Conditions simulating spasm of the inferior oblique. (A) Complete stationary paralysis of the superior rectus of one eye. Fixation with the other eye. No true spasm.

2. True secondary spasm of the inferior oblique. (B) Partial paralysis or insufficiency of the superior rectus of one eye and fixation with the same eye, causing pronounced secondary deviation (upshoot) of the other eye, due to spasm of its inferior oblique. (C) Paralysis of a superior oblique or some other muscle, causing secondary spasm of the inferior oblique in the same eye.

3. Primary spasm of the inferior oblique. Of course, no operation should be done unless we are sure (a) that the condition is permanent and stationary and (b) that the symptoms are so marked as to call for interference.

RARE FORMS OF CHORIOIDITIS.

In his opening remarks Mr. J. B. Lawford of London referred to the wide limits of the subject and to the difficulty in deciding what forms of chorioidal disease could be legitimately called "rare," the experience of observers in different countries varying markedly in this respect. His desire in introducing the discussion was to elicit opinions especially as to the *etiology* of some forms of chorioidal diseases, rare in his experience, which he proposed to bring before the meeting. The first group contained cases of widespread changes in the chorioid, closely resembling the common form of disseminated chorioiditis of syphilitic origin, but in which syphilis, acquired or inherited, could be excluded, at least with reasonable certainty. The patients were in most instances adolescents or young adults, the disease *generally* attacked both eyes, and its ophthalmoscopic features were strikingly similar to those of the syphilitic variety. The changes were, he thought, more chorioidal and less retinal than in the syphilitic disease, and vision was, as a rule, but slightly affected. He fully recognized the difficulty of obtaining reliable evidence that such cases were not of syphilitic origin, but he felt convinced that disseminated chorioiditis occurred from causes other than syphilis. Among possible causes, tubercle, gout and septic inflammations of the chorioid were considered.

The second rare form of chorioiditis was that to which the term "localized exudative chorioiditis" might be applied. In this variety there was an acute limited inflammation of the chorioid, with considerable swelling and exudation. The overlying retina became hazy and edematous and fine changes were present in the vitreous. The disease ran a fairly definite course and terminated in an area of destruction of the chorioid. It occurred in young adults, and showed a decided tendency to recurrence. Syphilis probably played no part in its production. Tubercle in the patient or in the family was not uncommon. The third form was "family chorioiditis," the disease attacking two or more members of the same family and showing considerable variation in type. In some of the published examples the chorioidal lesion had been associated with gross disease (paralytic in character) of the nervous system.

Dr. Hill Griffith said there could be no doubt that cases of non-syphilitic chorioiditis were quite common and referred to a case of his that the president had seen.

1. Cases of solitary follicles of chorioiditis with Descemetitis were, he believed, first mentioned by himself some 12 years ago in the Transactions of the Ophthalmological Society. Since then he had seen a great number of cases. He still believed that the exudations on the back of the cornea were directly carried from the disease in the chorioid and that syphilis played no part in the causation.

2. Had seen two cases of unilateral plastic localized exudation in sisters, in which the eye had shown increased tension and other signs resembling growth. Examination showed fibro-plastic growth with formation of plates of bone.

3. The cases of large central chorioidal "craters," often referred to as coloboma of the macula, were, he believed, *not* of this nature, but from inflammation taking place before birth.

Dr. Charles S. Bull, New York. Acute localized chorioiditis. I have seen a number of these cases and they have all been unilateral. They occurred in young persons, in whom there was no evidence of inherited or acquired syphilis. The retina was always involved and this was confirmed by the presence of a localized scotoma. The location of the exudation was always in the posterior segment, near the optic disc or macula. In two of these cases, the other eye became subsequently involved several years later. In none of the patients was there any tuberculous manifestation, either in the patients or in the family, though glandular complications were common.

Mr. Lawson cited two cases of rare chorioiditis. The first was an example of localized exudative chorioiditis associated with keratitis punctata and limited vitreous opacities, all three chemical signs being in a direct continuous line, the corneal deposit at the lower corneal quadrant and the chorioidal exudation just below the disc. The patient was very gouty and there was no history of syphilis and no signs of iridocyclitis beyond the keratitis punctata. The second was a case of widespread retino-chorioiditis of a degenerative rather than inflammatory type, accompanied by great loss of central vision, narrowed fields of night-blindness. It occurred in a boy, the subject of severe chronic pyorrhea alveolaris and resulting dyspepsia. Under general treatment he did not make progress, but after extraction of all the teeth and the substitution of a good false set and cure of the dyspepsia he very rapidly improved in every way, and vision from 6/36 improved to 6/12 and the night-blindness nearly disappeared. The chorioidal lesions are, of course, very evident still, but the fundus picture is much better.

Dr. S. D. Risley, Philadelphia, called attention to a group of relatively rare forms of chorioiditis which seemed to sustain a causative relation to disease of one of the bony sinuses in the anterior segment of the skull, lying contiguous to the walls of the orbit. Dr. Risley related briefly the history of two cases of exudative chorioiditis, illustrating this view; in one of which disease of the sphenoidal sinus, in the other disease of the maxillary antrum, consecutive to the neglected pyorrhea, were the cause of the chorioiditis. Prolonged eye-strain due to uncorrected errors of refraction, he thought, explained some cases of chorioiditis which could not be traced to some general dyscrasia. He urged the importance of these local causes for obscure cases of chorioiditis.

Dr. L. Webster Fox, Philadelphia, mentioned a rare case of chorioiditis which seemed to follow in and about the macular region of the retinæ; in fact, the total posterior section of the eyeball was affected. The drawing shown is a good representation of the condition as it existed before total detachment. He believed the crystal formation is the result of some vascular inflammation of the choriocapillaries. After the most careful attention and treatment detachment of both retinæ took place. The lower and outer quadrants were the parts affected, both symmetrical. Vision fell from 20/20, both eyes, to 20/200. After prolonged treatment there was no improvement in vision. He believed that a vascular inflammation preceded the excessive deposit of cholesterin crystals, and ultimately the detachment followed. Here and there in the periphery of the fundus spots of chorioiditis would be noticed. In his judgment, this was a type of chorioiditis which follows certain forms of inflammation of the blood vessels of the chorioid.

THE PRESERVATION OF OPHTHALMIC KNIVES.

By Mr. Ernest Maddox. The exclusion of moisture by calcium chlorid is insufficient for the preservation of ophthalmic knives if air has free access.

The rectangular receptacles in present use can not exclude air sufficiently, and are recommended to be replaced by cylindrical glass jars with air-tight covers, and in which the instruments are attached by little clips to an anterior metal cylinder so as to allow inspection by turning the glass round. If desired, permanent sterilization is attainable by the employment of alkalized absolute alcohol.

Pocket receptacles for one or two knives kept permanently sterilized were shown. The cap on each cylinder has a little slot and pin which draws out the knives and allows the cap to be unscrewed without rotating them. The distal end of the small rack is fitted with a circular spring wire to avoid jarring of the knives and breakage of the glass cylinder.

These knives are held powerfully to their racks by safe devices so that the cylinders can be twirled about without the knives being imperiled.

These appliances were made for the reader of the paper by Weiss & Son, 287 Oxford street, London.

SOME RECENT CASES OF DEATH AND BLINDNESS FROM WOOD ALCOHOL POISONING.

By Casey A. Wood, Chicago. Although quite common in North America, intoxication from the imbibition of the methylated preparations is unknown in Great Britain. This is due to the fact that deodorized or refined wood alcohol is extensively used as a substitute for grain alcohol in the United States and Canada where the high excise duty prohibits its employment in the arts and industries. The characteristic ocular lesion is an optic neuritis which is generally recognizable in the early days of the intoxication. The optic outlines are blurred, there is some papillary edema and the central vessels are distinctly engorged. The onset of the neuritis gives rise to a primary blindness. The acute papillitis soon subsides and vision improves to be followed by a postneuritic atrophy and permanent loss of sight.

The most interesting form of the poisoning is that from inhalation of the fumes in a confined space, generally in shellacers whose varnish is made from Columbia spirits—the common form of "deodorized" wood alcohol. The patient complains, within 48 hours, of nausea, abdominal distress, weakness of the extremities, severe headache, blindness, difficulty of breathing, followed, in the fatal cases, by convulsions, coma and death. Treatment of the eye lesions, that show themselves in about one-fourth of all the cases of serious poisoning, is of little avail. With the adoption of a "denatured," untaxed grain alcohol for commercial purposes by the United States and its probable adoption by the Canadian government, this form of poisoning will disappear. Meantime some seven hundred or more people have been killed or made blind by methylated preparations in the countries named.

Discussion: Dr. Bernstein of Kalamazoo, Mich., reported a case of inhalation of methyl alcohol in a watchman in a pharmaceutical laboratory. It seems that it is customary with some houses to use methyl alcohol for purpose of extracting active principle of drugs. Is there any danger from methyl alcohol poisoning in the use of such extractions?

DISCUSSION ON SYMPATHETIC OPHTHALMIA.

The discussion was opened by Dr. Burnham of Toronto. The paper dealt with the treatment of the sympathetically inflamed eye and also stated his belief that the routes traveled by the impulse, the latter a thing difficult to formalize, were the optic nerve and the ciliary nerves. He stated that the combined treatment, that is, the internal use of mercury and the iodid of potash with the hypodermic injections of pilocarpin can control, that is, practically cure sympathetic inflammation. Taking the idea of being able to act upon this disease, he has now decided hereafter when eyes wounded and dangerous through the injury to the ciliary region, which otherwise would not be removed, to retain these eyes. The other eye will be rendered immune through the combined treatment. He advocates that this be at once used so as to prevent the onset, the injured eye of the process leading up to sympathetic inflammation. From his long experience of the use of combined treatment, viz.: sixteen (16) years, he feels fully justified in advocating this procedure. Certain details have to be worked out before making known the routine to be observed.

Mr. Arnold Lawson of London, England, followed Dr. Burnham and confined his remarks to the consideration of the preventive treatment of the disease. What he thought was most needed was more authoritative lines upon which a surgeon might base his decision upon the propriety of attempting to save a dangerously wounded eye. He was of opinion that great advantage to ophthalmology would result from the formation of a small committee to collect evidence and issue a report on the following five questions to which for discussion purposes he answer according to his own personal views:

1. Can it be definitely stated of any wound of the globe that it will inevitably produce sympathetic ophthalmitis in the other eye?

2. If not, what are the lines upon which a surgeon should decide upon immediate removal of the globe?

3. What are the considerations which may decide him to attempt to save the eye?

4. In the later history of a case, short of definite evidence of commencing sympathetic ophthalmitis, what symptoms, if any, should decide the surgeon to advise enucleation of the injured eye?

5. Are there any premonitory symptoms which may accurately be described as heralding the approach of sympathetic ophthalmitis and upon the advent of which a surgeon, by immediate enucleation of the injured eye, prevent the onset of the disease?

Dr. J. W. Stirling, Montreal. The pathology and etiology of sympathetic inflammation need elucidation before the treatment of this disease can be anything but empirical. An advance has been made during the past year by Fuchs, Romer and zur Nedden, as a result of which a distinct type of traumatic uveitis has been discovered, the infectious nature of the disease determined and the probable transmission of the germ by the circulation indicated. Further, a bacillus has been found, the inoculation of which into the vitreous and circulation of a rabbit has set up a uveitis similar to sympathetic ophthalmia. Only when these points have been made absolutely clear can we hope for a clear diagnosis and scientific treatment of sympathetic ophthalmia, possibly on the lines of a serum infection, as zur Nedden indicated in the treatment of one of his cases. Sympathetic ophthalmia and sympathetic irritation are absolutely distinct, the latter being purely a fifth-nerve reflex. Romer, in his exhaustive researches on blood immunization, has shown in these cases no true inflammatory changes occur, as did also Fuchs in his work.

Dr. Verhoeff of Boston thought that cases of sympathetic disease arising many years after injury might be explained by recent infection of the scar by specific micro-organisms. Infection of old scars by pyogenic cocci was a matter of common knowledge and a similar infection might be the causative factor in these cases.

Dr. Connor of Detroit made general comments upon the etiology of the disease and stated that he found saturating his patients with salicylate of soda the most satisfactory treatment.

Dr. Jones of Cumberland preferred subconjunctival injections of cyanide of mercury (1-3000) in normal salt solution, using 30 minims for an injection, and narrated a case in which this treatment proved highly efficacious after prolonged trial by other methods, including mercurial inunction, salicylate of soda and pilocarpin injections, during which forms of treatment the patient grew steadily worse.

Dr. Theobald of Baltimore believed in the neuropathic origin of the disease and held that a vasomotor paralysis of the vessels of the sympathizing eye preceded actual inflammation as indicated by tortuosity and distention of the central retinal veins in disease commencing in the posterior pole, and by similar condition of the subconjunctival veins in disease commencing in the anterior structures of the eye.

Dr. Albert R. Baker narrated a case of sympathetic ophthalmitis which followed a streptococcic invasion of the other eye after an extraction of cataract.

Dr. Risley of Philadelphia stated that he knew of a case of sympathetic irritation that had lasted for over 50 years without the onset of sympathetic ophthalmitis. In cases of true irritation there often seems to be a definite relation to strain upon the ciliary muscle of the injured eye.

Dr. Colin Campbell of Toronto recalled a case of sympathetic ophthalmitis going on to blindness where there was merely a chronic superficial marginal ulceration of the cornea without perforating wound in the other eye.

Dr. Weeks of New York spoke of the condition of uveal tract in cases of sympathetic ophthalmia, which occur many years after the initial lesion to the "exciting" eye, mentioning one case which he had reported which occurred 45 years after the injury to the "exciting" eye. In five "exciting" eyes which Dr. Weeks examined he had found a small-celled infiltration of the uveal tract usually most pronounced in the ciliary body and others signs of inflammation—the interstitial uveitis of Fuchs. He is of the opinoin that evidence of threatened sympathetic inflammation is present when the exciting eye, after having been quiescent for some months or years, shows evidence of deep-seated inflammation (iridocyclitis), however mild this may be. In regard to the bacterial theory of the cause of sympathetic inflammation it would seem that the cases that occur so late afford evidence against it, but, since tuberculosis and syphilis are evidence of long-delayed manifestation of bacterial infection, it is not conclusive.

DISCUSSION ON VISUAL TESTS FOR THE RAILROAD, MARINE AND MILITARY SERVICES.

Dr. C. H. Williams of Boston introduced the subject of Visual Tests for Railway and Marine Service in a thorough and exhaustive treatise in the matter.

Mr. Arnold Lawson of London opened the discussion with regard to visual tests for military service. He first outlined the general requirements of an army in so far as could be gathered from an exhaustive inquiry into the regulations in force in the great countries of the world, and then went on to analyze the present regulations obtaining in England and to suggest certain improvements.

Dr. A. Duane.—In a recent paper by Dr. Nelson Black of Milwaukee, collating the views of a number on this subject, one author stated that a man with a moderate ametropia could really see distant colored lights better without glasses than with them. I can controvert this view from personal experience. Having a mixed astigmatism of about 2 D. and a vision without glasses of 20/40, I find, from a somewhat extended experience in looking at colored lights and flags on the water, that my vision with glasses is practically as good and serviceable as that of another man without glasses and having V. = 20/20.

Without glasses my vision is so bad as to render me incapable of reading the signals properly. Indeed, it should be so; for the very enlargement of the retinal images produced by the diffusion makes adjacent retinal images overlap and hence causes distant objects and especially adjacent signal lights to appear to blur and run together in a most confusing way. From my personal experience, too, I am sure that the faintness of the image produced by diffusion in the uncorrected ametropic eye enhances by a good deal the difficulty of distinguishing the object.

Dr. Coote, Quebec. The standard of acuteness of vision considered sufficient by the pilotage of service between Montreal and Brunswick is, unluckily, very much below the standard considered essential in all other civilized countries. Until within very recent years no examination at all was held of the vision of pilots until they had reached the age of 65 years. Some years ago I examined a number of these men, and, though 25 per cent. were color blind or had insufficient vision, all were allowed to return to their duties. Three or four years ago 50 pilots were again referred to me, of whom 20 per cent. failed to pass the Holmgren test, all of whom were allowed to return to duty. I have not found it possible to ascertain what low standard or test is considered sufficient for the service, but I have been informed by the medical officer who examined the pilots this year that, providing a pilot reads the fifth line of Snellen's type at 14 feet, using both eyes at once (what acuteness of vision that represents I do not know) he is considered qualified. Needless to say the standard is ridiculously low and offers no security to the great interests that are confided to pilots. It has not been possible to examine the sight of any pilot who has become involved in an accident. The gentleman who is responsible for the visual tests is one of the assessors who form the court that tries pilots and others who become involved in accidents. Naturally he would not call into question the efficiency of a service for which he is responsible. The pilot's eyesight is never questioned. The whole system is dangerous.

Dr. E. Jackson of Denver. The danger of relying on tests that are not reliable should not be forgotten. There is a certain part of the spectrum that serves as a test for nearly all cases of red and green blindness, but a slight departure from this allows many cases to escape detection. Test letters that can be known from the larger letters on the card are readily learned and the candidate will often take great pains to thus evade the test.

Dr. Fergus (Glasgow) said that, in his opinion, it was essential for a man who had the duties of a pilot to perform to have a good light difference sense. Without that it would be quite impossible for him to pick up the land on a dark night.

OBSTRUCTION OF THE CENTRAL RETINAL VEIN (WITH LANTERN DEMONSTRATION).

By F. H. Verhoeff, A.M., M.D., Boston, Mass. The writer gave the results of anatomical examinations in six cases of obstruction of the central vein. The conclusions drawn from a study of these cases and of the cases from the literature were as follows:

Complete obstruction of the central retinal vein, with the classical ophthalmoscopic picture of thrombosis of this vessel, may be produced by endophlebitis proliferans without thrombosis. The proliferation may involve the subendothelial tissue alone or the obstruction may be completed by a more active endothelial proliferation within the lumen.

All of the cases hitherto anatomically examined in which obstruction of the central retinal vein has been attributed to nonseptic thrombosis can be explained by and in all probability were due to endophlebitis proliferans alone.

The so-called canalized thrombosis of the central retinal vein is in the nature of a dissecting aneurysm.

In certain cases obstruction of the central retinal vein may early give rise to acute glaucoma.

DEPENDENCE OF ACCOMMODATION AND MOTILITY ON THE REFRACTION.

By Herman Knapp, New York, N. Y. The emmetropes see at distance clearly, without an effort, and their muscles are without strain; they have orthophoria. The hyperope has to make an effort, even by perfect sight. The same effort has to be made by the internal recti. Suppose hyperope of 2 D. sees a distant object, say Snellen XX. He will see that with a strain by seeing through a plus 2 D. glass. Now determine his muscular balance. You will find that he has 2 degrees of esophoria, which, by looking through a plus 2 D., will be converted into orthophoria.

The myopes have mostly exophoria, and their conditions are the same in character, but with negative spectacles. They do not give so uniform results as the hyperopes.

My method of examining the patients is as follows:

The vision at distance, first without, then with glasses, which gives the refraction; then I determine the muscular balance with the phorometer. If this differs much from the glass results, I conclude that there is latent H. or M. With gradually giving stronger glasses, I mostly find out at least a part of the latent H. or M. If this is not sufficient I either use a mydriatic or prescribe the strongest glasses they accept, give them gradually stronger ones. and thus arrive to the degree of H. or M. This is also the treatment in these cases.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, Oct. 18, 1906.

Priestly Smith, F.R.C.S., President, in the Chair.

Mr. George Coats read a paper in posterior scleritis and infarction of the posterior ciliary arteries. He referred to the first description of this condition by Fuchs in 1902, and to cases probably similarly reported by Knapp, Wagemann and Salzer. Only two such cases had been submitted to pathologic examination. In his own case the disease was not diagnosed during life, as the eye when first seen was already disorganized by irido-cyclitis.

On dividing the globe, a peculiar round area 10 mm. in diameter was found above the papilla, in the form of a brown island, surrounded by a broad yellow moat or gutter. Within this area the inner third of the sclera and the whole thickness of the chorioid and retina were completely necrotic. There was no inflammatory thickening of the necrotic patch, but a moderate round cell infiltration of the living tissues. The other changes in the eye were due to irido-cyclitis and secondary glaucoma.

Mr. Coats pointed out that the amount of necrosis was out of all proportion to the inflammation. so that there must have been vascular obstruction. The necrosis was more extensive in the retina than in the chorioid and in the chorioid than in the sclera, and this corresponded to the usual wedge shape of the infarction. The affected area would correspond to the distribution of one of the larger posterior ciliary vessels, and these vessels had but scanty anastomosis with each other. The changes in the retina were closely similar to those found in the rabbit after ligature of the ciliary arteries, and in man after optico-ciliary neurotomy. The surrounding chronic inflammation was similar to that found in non-infective infarctions elsewhere, and the chronic irido-cyclitis was probably of the same nature, due to the diffusion of toxins of low virulence into the vitreous. There was some evidence of vascular obstruction in two of the other reported cases.

Mr. Holmes Spicer read a paper on metastatic affections of the eye. The first case was that of a young man who had a sudden attack of pain in one eye, with obliteration of the central part of the field of vision. He was in good general health except for a large crop of boils on the buttocks from rowing at Cambridge. On examination of the eye three days after the attack of pain a brilliant green mass was seen springing from the center of the disc; it was round, sharply defined, and had no appearance of structure, such as hooklets. Its appearance suggested a parasitic cyst. It continued to grow and was making the patient very ill. It was lacerated with a needle under ophthalmoscopic guidance, but it only contained some cloudy opaque material like pus. The eye was enucleated. The swelling was found to be an abscess in the substance of the retina, having in its center a large mass of staphylococci. The patient made a rapid recovery in health.

The second case was also that of a young man who had had a large boil on the neck and was suddenly seized with pain in one eye with loss of sight. He had well-marked phlebitis of the retinal arteries in one eye, and slightly in the other. After prolonged treatment one eye got well and the other became quiet with loss of sight. Two years later it became acutely inflamed and was then enucleated. Although very seriously ill at the time, he recovered promptly after removal of the eye, showing it to be the only part affected.

The third case was also that of a young man who had retinal phlebitis, followed by local keratitis profunda after a serious attack of diarrhea and ptomaine poisoning.

The fourth case was one of diffuse exudation on the surface of the chorioid, invading slowly nearly the whole of it and producing in places detachment of the retina. This also occurred in a young man suffering from a large crop of boils on the neck. Treatment by antistaphylococcal injections was commenced, but he refused to continue it.

Notes and News.

Personals and items of interest should be sent to Dr. Frank Brawley, 72 Madison Street, Chicago.

DR. MELVILLE BLACK of Denver has been elected secretary of the Colorado State Medical Society.

MR. R. SWANZY of Dublin has been chosen president of the Royal College of Surgeons, Ireland.

THE Provincial Blind Asylum at Bromberg, Germany, is to be enlarged at a cost of more than $30,000.

THE society for the support of the blind in Nurnberg intends to build a school and home for the blind upon a recently acquired piece of ground.

DR. F. C. HOTZ, professor of ophthalmology, Rush Medical College, has recovered from his long illness, and is now attending his private practice as usual.

DRS. J. MCCHESNEY HOGSHEAD and Darius N. Barrett of Chattanooga, Tenn., have started a sanitarium especially for diseases of the eye, ear, nose and throat.

PROF. DR. KARL BAAS of Freiberg i-Br. has been called to the position of chief of the eye clinic of Vincentius-haus in Karlsruhe to succeed Dr. Th. Gelpke, deceased.

PROF. DR. DARIER of Paris has been appointed by Minister of the Interior Clemenceau to study school hygiene of the eyes and the furnishings and appointments of the eye clinics in Germany.

DR. O. FEHR, who was assistant in Professor Hirschberg's eye hospital for nine years, has been made superintendent of the eye department of the Rudolph Virchow Hospital, in Berlin.

COMPTROLLER MCGANN of Chicago is in receipt of a proposition to build a non-sectarian school for the blind on the Gage farm. The name of the donor has not been given out. The building is to cost $50,000.

DR. A. P. GILMORE died on October 10 at his residence in Chicago. He was 55 years of age and death was the result of Bright's disease. At one time Dr. Gilmore was a prominent oculist but had recently retired from practice.

THE Royal Blind Asylum in Steglitz celebrated its one hundredth anniversary on Oct. 13, 1906. Director Matthies is in charge of the institution and the jubilee program was arranged and carried out under his supervision.

DURING September the out-patient department of Mount Sinai Hospital, New York, treated 945 new cases, of which 211 suffered from disease of the eyes. The Stetson Hospital, also of New York, reports 1,455 patients of whom 254 were eye cases.

DR. GEO. W. ROBINSON of Shreveport, La., after an absence of six years in New York, has returned to Shreveport to practice ophthalmology. He was formerly resident surgeon to the Manhattan Eye and Ear Hospital, New York.

THIS year the Royal Blind Asylum of Berlin celebrates its one hundredth anniversary. It was founded in 1806 by Prof. Dr. Zeune. The institution recently received a bequest of 53,000 marks ($13,250) from the estate of Eugen Aders, of Berlin.

THE University of Marburg, Germany, has made the following appropriations for the expense of scientific research: Privatdozent Dr. Wm. Krauss of the Eye Clinic in Marburg, $200; Dr. med. Grau, $100; Dr. Thaler, volunteer physician to the Marburg Eye Clinic, $100.

THE metropolitan board of works of Melbourne, Australia, has bought the government five allotments of ground in Dodd and Wells streets, South Melbourne, for $15,000. This is to be used for the addition to the Victorian Eye and Ear Hospital, which will pay $7,500 down and the balance is to be paid in ten years with interest at four per cent.

AT the recent elections thirty-two inmates of the Industrial Home for the Blind in Brooklyn, N. Y., voted in a body. Each man was allowed to choose an inspector who accompanied him into the voting booth and assisted him to put the crosses in their proper places. Objection was made that these men were not entitled to the franchise because they were non-supporting, but it was decided that they are really making their own living by their work in the Industrial Home.

THE Austrian minister of the interior in Vienna has recently taken steps to prevent the use of the clinical material at the various hospitals and clinics in Vienna for experimental purposes, such as trying out new methods of examination or of treatment. Special cases may be expected from the general rule after an endless amount of official red tape. This is to counteract the popular idea that clinic patients serve as "versuchs-kaninchen," animals used for mere experimentation.

THE New York Subway, according to the Saturday Evening Post, is said to be responsible for a new eye condition. The motormen on the subway trains are obliged by the necessities of their work to stare constantly into the tunnel ahead of the train. This is supposed to cause a loss of function in the periphery of the retina resulting in telescopic vision. The rapid rate of travel in the tunnel is said also to result in filling the air with steel dust from the wear on the rails and wheels and this results in numerous cases of mechanical irritation of the conjunctiva and of foreign bodies imbedded in the cornea.

Prof. J. Pease Norton of the department of science at Yale University has issued the following bulletin in the interests of national health:

Bulletin No. 1. National Department of Health.—At the last meeting of the American Association for the Advancement of Science at Ithaca, June 30, 1906, a committee was appointed under resolutions of that body, to promote the establishment of a National Department of Health by agitation in all legitimate ways for the purpose of creating a public sentiment in its favor. The naming of the members of the committee is in the hands of Professor Irving Fisher, Yale University, chairman of this section of the American Association for the Advancement of Science. The names of the Committee of One Hundred selected will be announced shortly. The movement in general already has the support of the principal journals of medicine and hygiene in the United States.

In Graz, Germany, a recent examination of school children's eyes made by Dr. Rigobert Possek, showed that 45.37 per cent. of the boys and 50.16 per cent. of the girls, or an entire percentage of 47.76 of all school children, had abnormal eyes. As a result of the examination the following rules for the prevention of eye diseases were drawn up by Dr. Possek and published in the *Graz Tagespost,* a daily newspaper.

1. The greatest cleanliness of body and clothing, especially the hands, should be insisted upon both at home and in school.

2. Freedom from dust and perfect ventilation, especially in the schools.

3. If a pupil is suffering from any disease of the eyes he shall have proper medical care; he should leave school and special care shall be observed not to infect any other members of his family. All gymnastic exercises shall be forbidden, as well as all use of the eyes for near work.

4. No pupil shall be allowed to wear a bandage over an eye unless ordered by his physician, as bandages more often do harm than good.

The first annual meeting of the Medical Association of the Southwest and joint meeting with the Southwest Tri-State Medical Association was held at Oklahoma City, Oklahoma, on Tuesday and Wednesday, October 30 and 31, 1906. Dr. H. L. Alkire of Topeka, Kansas, was chairman of the eye, ear, nose and throat section and opened the meeting with an address.

The following papers were presented:

Eye Complications of Nephritis. By Dr. E. E. Hamilton, Wichita, Kansas.

Mastoid Surgery. By Dr. H. Coulter Todd, Oklahoma City, Okla.

Ophthalmic Neuroses of Menstrual Origin. By R. E. Runkle, El Reno, Okla.

The Use of Lead Styles in the Treatment of Strictures of the Nasal Duct. By H. Moulton, Fort Smith, Ark.

Adenoids. By Dr. F. Vinsonhaler, Little Rock, Ark.

Report of Ear Case. By Dr. E. S. Ferguson, Oklahoma City.

Atrophic Rhinitis. By Dr. James E. Logan, Kansas City, Mo.

Some Phases of Eye Work. By Dr. A. W. McAlester, Kansas City, Mo.

Sympathetic Ophthalmia. By Dr. Edmund H. Cary, Dallas, Tex.

A paper (title not announced). By Dr. John R. Hamill, Guthrie, Okla.

Dr. H. L. Alkire was one of the committee of organization and also of the program committee. Dr. H. Coulter Todd was on the committee of arrangements.

THERE is some probability that the Illinois Industrial Home for the Blind, from the superintendency of which W. W. Carnes has been asked to resign, will not continue long to disturb its trustees or the state administration. An effort to abolish it, made two years ago, will be renewed this winter in the legislature with better chance of succeeding.

"The state could better afford to take all the blind at the place and keep them at the Auditorium Annex," said one of the members of the legislature yesterday. "It would be less expensive."

This is a solonesque exaggeration, but it points to the fact that the home costs more per capita than any other state institution. It averages about seventy-four inmates, and requires from sixteen to twenty employes.

For every four blind workers who are making a living there in the manufacture of brooms one employe is making a living from the state seeing that they make brooms.

Two years ago the house appropriations committee had the lower body of the legislature pass a bill abolishing the home, with the provision that all the inmates who cared to continue in institution life should be cared for at the larger school at Jacksonville, and that to those who did not want to leave Chicago an annual pension of $150 should be allowed. The senate failed to act on the measure, but it is likely to be revised this year.

COSTS STATE $35,000 A YEAR.

A yearly appropriation of $35,000 is made for the home, which is the basis for the estimate that each blind workman costs the state $500 a year. The state board of charities gives the net per capita cost as $92.94.—Chicago *Tribune,* Nov. 10, 1906.

RECENT PUBLICATIONS IN OPTHALMOLOGY.

HERPES ZOSTER OPHTHALMICUS. By Dr. Osterroht. Published by Carl Marhold, Halle. Price, 80 pf.

THE COMBINED TREATMENT OF DISEASES OF THE EYE. By G. Herbert Burnham, M.D., F.R.C.S. Edin., M.R.C.S. England. Published by H. K. Lewis, 136 Gower St., London.

MOTOR APPARATUS OF THE EYES. By Geo. T. Stevens, M.D., Ph.D., New York. Illustrated with 184 engravings, some in colors. Published by F. A. Davis, Philadelphia.

TREATMENT OF DETACHMENT OF THE RETINA (Ueber die Behandlung der Netzhautablösung). By Prof. W. Uhthoff, Breslau. Published by Carl Marhold, Halle. Price, 2 marks.

PREVALENT DISEASES OF THE EYE. By Samuel Theobald, M.D., Baltimore. 219 illustrations and 10 colored plates. Published by W. B. Saunders Company, Philadelphia. Price, $4.50.

CLINICAL OPHTHALMOLOGY (Oftalmologia Clinica). Statistics of 8,000 cases. Illustrated with 158 figures and 35 plates. By Dr. Enrique Lopez, Havana. Published by Imprenta advisador Comercial, Amargura 30, Havana.

NEUROLOGY OF THE EYES. (Die Neurologie des Auges. Ein handbuch für Nerven und Augenärzte). By Dr. H. Wilbrand and Dr. A. Saenger, Hamburg. Third volume, second half. Published by J. F. Bergmann, Weisbaden.

SOME OF THE NEW SALTS OF SILVER IN OCULAR THERAPEUTICS (Des Nouveaux Sels d'argent en Therapeutique Oculiare). By Dr.

A. Darier, Paris. Edite aux Bureaux de la Clinique Ophthalmologique, 9 rue Buffault, Paris. Price, 3 francs.

CLINICAL AND ANATOMICAL STUDIES OF THE TUMORS OF THE EYE. (Klinische und anatomische Studien an Augeneschwülsten). By Dr. Gottfried Ischreyt, Libau, Russia. Eighteen figures in the text. Published by S. Karger, Karlstrasse 15, Berlin.

OCULAR THERAPEUTICS (Leçons de Therapeutique Oculaire d'Apres les Découvertes les plus Récentes). By Dr. A. Darier, Paris. Third edition. Edité aux Bureaux de la clinique Ophthalmologique, 9 Rue Buffault, Paris. Price, 12.50 francs.

SECOND HALF OF THE TEXT-BOOK OF SPECIAL PATHOLOGICAL ANATOMY. (Lehrbuch der Speciellen Pathologischen Anatomie). By Dr. Johannes Orth, Berlin. The eye pathology is by Prof. Dr. Greeff, Berlin. Published by August Hirschwald, N. W. Unter den Linden 68, Berlin.

DISEASES OF THE EYE. A handbook of ophthalmic practice. By G. E. deSchweinitz, M.D., professor of ophthalmology in the University of Pennsylvania. Fifth edition, revised and enlarged. Octavo of 894 pages, 313 text-cuts and 6 chromo-lithographic plates. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $5.00 net; half morocco, $6.00 net.

THE ACCOMMODATION OF THE EYES OF THE PIGEON, with Observations upon the Accommodation of Monkeys (Macacus Cynomolgus) and Men. (Ueber die akkommodation des auges der taube nebst bermerkungen ueber due akkommodation des affen (Maccacus Cynomolgus) und des Menchen). By Dr. Albert v. Pflugk, Dresden. Illustrated with 15 figures and 3 plates. Published by J. F. Bergmann, Wiesbaden.

FRENCH ENCYCLOPEDIA OF OPHTHALMOLOGY (Encyclopedie Francaise d'Ophthalmologie). Edited by Dr. F. Lagrange and Dr. E. Valude. Vol. VI. Affections of the uveal tract—Tumors of the uveal tract—Diseases of the vitreous body—Diseases of the retina—Tumors of the retina. By Dr. Venneman, Dr. Lagrange, Dr. Rohmer, Dr. Dufour, Dr. Gonin. With 133 illustrations and 11 colored drawings. Published by Octave Doin, 8 Place de l'Odeon, Paris. Subscription price, 150 francs.

THE EYE SYMPTOMS OF DISEASES OF THE MEDULLA OBLONGATA. —the pons, the fourth ventricle, the crus, the corpora quadrigemina and the pineal gland. (Die Augensymptome bei den Erkrankungen der Medulla Oblongata, des pons, des Vierten Ventrikels, der Hirnschenkel, der Vierhügel und der Zirbeldrüse (Glandula Penealis). By Prof. W. Uhthoff, Breslau. Illustrated with 22 figures and 5 plates. (Reprint from *Graefe-Saemisch Handbuch der Augenheilkunde*). Published by Wilhelm Engelmann, Leipzig.

PHOTOSCOPY. By Mark D. Stevenson, M.D., Akron, Ohio. Published by W. B. Saunders Company, Philadelphia and London. Price, $1.25.

The author employs the word "Photoscopy" instead of retinoscopy, shadow test, etc., because it means "to examine or look at light." It is essentially a light test and not a shadow test, and we think this is the best name which has been given to it. The mirror is employed to throw light, not shadows, and it is the light area on the retina which moves in accordance with the movements of the mirror which is studied. The book is elaborately illustrated in a manner new and clear. Every detail of the procedure is elucidated in such a manner that the novice can easily understand and the expert add to his knowledge.

Certainly the idea of keeping in mind that it is the illuminated pupillary area which is to be reckoned with is much better and less confusing than trying to deal with the shadow surrounding the light area. Many authors so confuse the shadow with the light area that it is difficult for the beginner to understand to which he must give the greater importance. As a result we find him estimating the refraction through portions of the pupil not used in direct vision. The author constantly keeps the light area before you until the shadow is forgotten. To our way of thinking it is only by completely disregarding the movement of the shadow and confining one's attention to the movements of the central light area that perfection is arrived at in the use of this test.

We commend this book most highly. There are few indeed who will not profit by reading it. MELVILLE BLACK.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, DECEMBER, 1906. VOL. XV. No. 12, NEW SERIES.

Original Articles.

THE IMMERSION TREATMENT WITH ARGYROL SOLUTIONS OF THE PURULENT OPHTHALMIAS.*

HENRY DICKSON BRUNS, M.D.

NEW ORLEANS, LA.

About a year ago I published in the November number of the *New Orleans Medical and Surgical Journal* a paper on "Gonorrheal Conjunctivitis in the Adult and in the Infant." In that paper I told my experience with argyrol in the treatment of this most dreadful of conjunctival diseases. I was glad to support my position by free quotations from the valuable paper, doubtless familiar to you all, by Dr. Myles Standish, published in the *Journal of the American Medical Association* of Dec. 17, 1904. In the report of the discussion, which followed the reading of Dr. Standish's paper before the Ophthalmological Section of the Association, I was surprised to note the long interval allowed between the instillations of the argyrol solution by those who spoke; a practice which seemed to me to vitiate all their conclusions. I shall not pause here to recount these expressions, but shall merely repeat, that "Dr. Standish himself describes his routine use of the solution to be from once every hour to once every four hours in ophthalmia neonatorum; as he mentions no difference, he presumably employs it in like manner in the adult. I am firmly persuaded that the great advantages of the treatment with argyrol can not be reaped in this way."[1] My surprise was increased when correspondence with some distinguished confréres of the north-east disclosed that they were regarding argyrol with rather dubious favor; though I could not elicit that they had tried the drug in exactly the manner which had given me what seemed such delectable results. Therefore I turned once more to the subject and began to observe these cases with redoubled care.

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* Read before the American Ophthalmological Society, June, 1906.

[1] Dr. Frank C. Todd, of Minneapolis, in maintaining the superiority of Protargol, speaks of using the two drugs in solutions of 50 per cent. in glycerin from one to three times daily. Such a mode of using argyrol is utterly inadequate to obtain the effect sought and the extremely irritating menstruum chosen (glycerin) sacrifices one of the most valuable properties of the remedy. Dr. John E. Weeks, of New York, speaks of using argyrol in 35 per cent. solution "about every two hours"; Dr. Hiram Woods, of Baltimore, of using a 25 per cent. solution every third hour and a 50 per cent. solution twice a day.

My experience with argyrol began about the mid-winter of 1903 in the Eye Clinic of the Eye, Ear Nose and Throat Hospital of New Orleans. At once substantiating the claim that it was non-irritating and absolutely painless, our staff began its tentative use in solutions of different strengths.

Believing we perceived favorable effects upon certain infected ulcers of the cornea, we watched closely its action in ophthalmia neonatorum only to be struck with its excellent effect. At first we used it every two hours as an adjuvant to an application of 1 per cent. silver nitrate solution once a day at the clinic. In the same way it was used in cases of purulent conjunctivitis in the adult, and with like good results. Noting how soon the secretion of pus diminished and then disappeared, and that far from any ill effect appearing the cases seemed to do better the more frequently we instilled our solutions, it occurred to me that we had come into possession of an antiseptic, not only bland and unirritating, but positively soothing to the inflamed conjunctiva; that to secure the best results, we should, as was sometimes done in general surgery, keep the infected tissues virtually immersed in the antiseptic solution. Acting upon this idea, by 1904 all other applications were abandoned and the frequency of the argyrol instillations was increased to every 30 or even every 15 minutes, night and day, until pus formation had totally ceased. The results were entirely satisfactory. About this time, too, I was greatly impressed by an accidental observation. Having extracted the dislocated lens from the eye of an elderly man, argyrol was freely instilled into the eye operated upon and both eyes sealed with a firmly applied dressing, moistened with argyrol solution and a bandage. On the third day, when the dressing was removed, the wounded eye was found absolutely clean, while the unoperated one, to which no argyrol had been applied, was affected with a profusely secreting conjunctivitis, which was not well until the thirteenth day after. During 1905 and 1906 this treatment has been pursued with even greater rigor, if possible. For in 1904, in one or two cases, incipient ulcers of the cornea were washed at the daily visit with 50 per cent. enzymol solution for a few days, until they appeared to be clean, but in 1905 and 1906 not even this has been done until pus formation has ceased. During these years argyrol has been incessantly used in the treatment of all wounds, operative or accidental, in all cases with any discharge, in all ulcers and in most cases of disease of the lachrymal apparatus, the instillations being made at short intervals. This constant use of the drug has led me to very positive opinions as to its qualities. Not only is it painless and non-irritating, but on the contrary so soothing to the irritated eye as to seem slightly anesthetic. Every one may have occasion to experience this in his own person. Its diffusibility is striking. A drop put into the eye spreads immediately over the globe and the insides of the lids and soon finds its way into the lachrymal sac and down the nasal duct.

How persistently it clings to the tissues, may be seen by observing it in the minute folds of the conjunctiva hours after it has been instilled, and its accumulation in corneal ulcers when it has been long employed. But I believe it not only clings to, but actually soaks into or penetrates the tissues; because, even after 12 hours, when no trace of it can be perceived on the conjunctiva, if the eye be irrigated with a clear solution the irrigating fluid will come back stained; its effect upon the gonococcus sustains this idea. As Dr. Standish has said, the high specific gravity of the salt is a telling advantage; for when freely instilled, even in 10 per cent. solutions, it floats the pus out between the lids and carries it with the excess of the solution down upon the cheek, whence it may be wiped even by the most clumsy and ignorant nurse without abrading the inflamed conjunctiva or cornea. On the other hand, certain disadvantages which the salt possesses have not been sufficiently emphasized. In the first place it, or at least its solutions, are unstable. Two or three weeks seem to be the longest time a solution in ordinary use will last without decomposition. In dark and cool places it is said to keep much longer. I am glad to see that its manufacturers have of late begun to call attention to this fact, for the use of old and decomposed solutions may explain many unsatisfactory results. For this reason it should be prescribed in small amounts, the patient should be warned and the prescription should specify that the solution must be fresh. Its cost makes this important also, for if bought from any but reliable retailers the solution may be furnished in weaker percentage than that ordered. Neglect of these precautions may cost an eye. Fortunately, as soon as decomposition sets in it begins to sting or smart the conjunctiva and so give us warning. In this condition it is very irritating.

Recently I prescribed, as I often do, a 10 per cent. solution to be used twice a day in the eyes of an old lady upon whom I was about to do cataract extraction. When I appeared on the third day after to perform the operation, she complained of the stinging produced by the drug; the conjunctiva was inflamed and hypersecreting and the operation had to be postponed for several days. I have observed that even fresh 10 per cent. solutions appear to irritate if used too long at frequent intervals. The longest I have ever used the 10 per cent. solution as often as once an hour during waking hours has been one month. Finally, it should be well understood that argyrol is not a powerful astringent. I feel sure that failure to seize this clearly has been the cause of many disappointments in its use. In the acute catarrhs, in which there is but faint risk of corneal involvement, and in which, therefore, we can proceed to stamp out the disease as rapidly as possible, one of the more powerful metallic astringents should be employed simultaneously. Thus I have found cases so severe as to be indistinguishable clinically from gonorrheal infection to yield readily to instillations of argyrol 10 per cent. and zinc-sulphate or sulpho-carbolate 1/5 to 1/40 per cent. each alternate hour. This, too, without confining the patient or restraining him from his ordinary employments. All the more then in the purulent ophthalmias, when suppuration has been controlled argyrol has played its most important part and a metallic astringent must make good the victory. If no remedy but argyrol is used, we observe a tendency on the part of many cases to remain stationary and to assume gradually a chronic condition. Although suppuration has ceased, the conjunctiva keeps thick and red, with a dull, slack, lifeless look, peculiar but difficult to describe. This is doubtless due to the feeble astringency of argyrol. The intervals between the argyrol instillations must therefore be gradually lengthened and silver nitrate in 1 per cent. solution be applied once daily to the carefully everted lids. But I cannot too strongly emphasize the caution that, no matter how severely our patience may be tried, this part of the treatment should never be begun until suppuration has ceased.

My observations convince me, just as Dr. Standish's did him, that the frequent manipulations, syringing, washing, wiping and pulling at the eye in our attempts to make thorough application of this or that remedy, or to remove every shred of pus from the conjunctival sacs, have been the cause of many of the very complications we most dreaded. No doubt during such manipulations we almost always injure the sick and softened conjunctival and corneal epithelium and open avenues of penetration to the gonococci. Certainly under the argyrol immersion treatment the course of the disease has been much less fierce. Corneal ulcer has been infrequent. In those cases in which it occurred the ulcer extended little in area or depth and in no instance left behind it scars of any consequence.

Finally, I admit that certainty in the initial diagnosis of conjunctival gonorrhea can be had by microscopical diagnosis only. We see on the one hand occasionally cases of acute infectious catarrh of such virulence, and on the other hand quite often true conjunctival gonorrheas of such mildness, that at the first examination we may mistake. But if properly attacked the course after the first 24 hours should resolve our doubt. Thus in the table of cases from my clinic two (Nos. 4 and 7) in which the microscopical diagnosis was positive, seen on the third and four day of the disease, were practically well, in spite of their mildness, only on the twelfth and thirteenth day, respectively. Pus formation persisted through the fourth in one and the fifth day in the other. The worse case of acute catarrh I ever saw, absolutely undistinguishable by inspection from a gonorrheal conjunctivitis of severity, was broken up by the second day and recovered under the use of argyrol and zinc sulphate each alternate hour in six days. The cases in table 2, not confirmed by the microscope, were only discharged after 23 to 61 days of treatment, with the exception of case 17; he was not seen until the twenty-first day of the disease, but even then required ten days of treatment. Considering the errors which may vitiate any single examination, I should prefer the clinical to a negative microscopical diagnosis in a case of purulent conjunctivitis, occurring in an individual affected with clap, or becoming in the first three or four days complicated with slow healing ulcer of the cornea, and lasting for ten days or longer in spite of proper treatment.

CASES.

The cases upon which the foregoing conclusions rest are: First, those given in the table prepared by Dr. Standish; and, second, those treated in the Eye Department of the Eye, Ear, Nose and Throat Hospital of New Orleans.

This table shows, that under the protargol treatment, while 66 + % entered with clear corneæ, only 43 + % were discharged with the corneæ clear; under the argyrol treatment only 62 + % entered with clear corneæ, yet 43 + %, the same as under protargol, were discharged with corneæ clear; under the protargol treatment while only 33 + % entered with corneal lesion, 47 + % were discharged with leucomata; under the argyrol treatment while 37 + % entered with corneal lesion, a greater number than in the protargol test, only 35 + % were discharged with leucomata, a much less number than under the protargol test, and a number positively less than those admitted with the cornea affected. Under the protargol treatment 14 per cent. *more* than those who entered with corneal lesions were discharged with leucomata; under the argyrol treatment 2 per cent. less than those who entered with corneal lesions were discharged with leucomata. It must be remembered that these percentage differences though small in themselves are proportionately large in a table dealing with only 85 cases. It is true that under the protargol treatment only 4 (8 + %) of eyes were lost, while under the argyrol treatment 8 (21 + %) were lost. It is to be observed, however, that 4.5 per cent more with corneal lesions present entered under the argyrol treatment than entered under the protargol treatment; now 4.5 per cent. of 85 equals almost exactly 4, the very number by which the eyes lost under argyrol exceeds the number lost under protargol; it is easy to conceive, therefore, that if this 4.5 per cent. of eyes treated with argyrol chanced to come under treatment with cornea badly ulcerated, they might, in so small a total as 85 cases, readily account for the whole excess of total losses, which at first blush seems so unfavorable to argyrol. It is needless to say that no one contends that argyrol can save a cornea already deeply infiltrated and sloughing (necrosed), an achievement the equal of a resurrection. Valuable as these cases are, they are certainly too small in number (37) to stand for more than an awakening suggestion, but taken in connection with those which I shall adduce from my own clinic, they are worthy of particular consideration as

DR. STANDISH'S TABLE, SHOWING RESULTS OF TREATMENT OF GONORRHEAL OPHTHALMIA WITH PROTARGOL AND ARGYROL.

Per cent used.	Entered with clear cornea.	Discharged with clear cornea.	Entered with corneal lesions	Discharged with leucoma.	Lost or total leucoma.
Protargol :					
10	18	14	10	13	1
20	12	5	6	10	3
30	1	1	..	..	..
40	1	1	..	..	..
	32 66 + %	16 43 + %	21 33 + %	23 47 + %	4 8 + %
Argyrol :					
15	2	2	..	..	..
25	12	8	7	6	5
50	9	6	7	7	3
	23 62 + %	16 43 + %	14 37 + %	13 35 + %	8 21 + %

Percentage added by H. D. B.

the contribution of an independent observer. With this regard they take on special force: That while they were treated within the walls of the Massachusetts Charitable Eye and Ear Infirmary and therefore, presumably, with all exactness, by well-trained attendants, the solution, so far as we can gather, was not instilled oftener than once an hour; a fact which, in my opinion, in large part sacrificed the most beneficent feature of the treatment — constant immersion of the affected organ. Mine, on the other hand, were without exception out patients; many were negroes and the whites from the humbler classes of our community; after the daily visit to the clinic they returned to poor surroundings and were nursed by untutored friends or relatives, perhaps with some irregularities; yet under the spur of incessantly reiterated threats, warnings and encouragements, I believe they attained nearer to what I esteem to be the essential of an efficient treatment with argyrol.

Cases from the eye department of the Eye, Ear, Nose and Throat Hospital of New Orleans. All "out cases" paying one daily visit to the clinic and treated by friends and relatives at home.

1893-1902.—In the ten years from the beginning of 1893 to the end of 1902, only 39 cases were treated until discharged, the various methods then in vogue being employed. Three of these were allowed to drag on a chronic course, but the average duration of treatment of the remaining 36 was between 39 and 40 days. Of the 39 cases, 3 (7.6 per cent.) were discharged worse, which meant that the eye was lost. How many of the "cured" escaped with more or less incapacitating leucomata, I can not say, for at that time even eyes seriously crippled by the disease we considered saved.

1903.—In this year we began the use of argyrol. Six cases treated with 10 per cent. argyrol every hour were cured in an average time of 18 days.

1904.—Seven cases treated with 10 per cent. argyrol every half hour and washed with 50 per cent. enzymol at the clinic were cured in an average time of 23 days.

1905.—In this year we were able to begin microscopical examinations. Thirteen cases treated with argyrol 10 per cent. every half hour (or oftener) and a borax wash in the catarrhal stage were cured in an average time of 22 days. It is noted in 4 cases that suppuration ceased after the third day. Microscopic diagnosis was positive in 4, probable in 2. In the 7 in which microscopic diagnosis was negative, in 2 ulcer of the cornea appeared by the third day and was slow in healing, and in 3 urethral gonorrhea was present. One of those with urethral gonorrhea also had corneal ulceration.

1906.—Four cases in which the microscopical diagnosis was positive. Three were treated for 10, 12 and 60 days each, when they quit practically well. Suppuration ceased by the fourth, fifth, sixth and seventh day. The fourth case, the most severe I have ever treated by this method, is one of those related in full.

From the cases of 1905 and 1906 the following interesting tables can be prepared. Some of the histories were, unfortunately, destroyed after the preparation of our hospital report for 1905, but it can be positively stated that in no case did suppuration persist after the seventh day; it was always greatly diminished by the third day.

TABLE 1.—GONORRHEAL OPHTHALMIA, MICROSCOPIC DIAGNOSIS POSITIVE. NO OTHER TREATMENT THAN INSTILLATION OF 10 PER CENT. ARGYROL SOLUTION EVERY 15 OR 30 MINUTES DAY AND NIGHT TILL SUPPURATION CEASED.

Day of disease.	No pus on	Discharged.	Other treatment.
1. Seventh. White man, age 23.	Fourth day of treatment.	On 44th day......	After 8th day, $AgNO_3$, 1 per cent., once daily at clinic.
2. Fourth. White man, "dago," age 55. Lids greatly swollen; copious discharge; severe case.	Second day..	Never returned after 4th day of treatment. Eyes growing steadily better.	None.
3. Third. White girl, age 3. Specific vaginitis.	Third day...	Seventy-eighth day. Conjunctivitis, struggled to become chronic.	After 6th day, $AgNO_3$, 1 per cent., once daily at clinic.
4. Third. Negro man, age 22..	Fifth day; little after 3d day.	Eighteenth day of treatment.	After 5th day of treatment $AgNO_3$, 1 per cent., at clinic, once daily.
5. Third. Mulatto man, age 27. Brawny lids, bacon fat infiltration of palp. conjunct. Croupous membrane; 3d day, marginal ulcer of cornea.	Third day practically none.	Seventy-eighth day. Treatment of nebula corneæ prolonged. Conjunctiva well 62d day.	After 6th day $AgNO_3$, 1 per cent., at clinic.
6. Fourth. Negro man, age 29..	Fourth day hardly any.	Quit on 4th day. Steadily improving.	None.
7. Fourth. White woman, age 20, mild infection.	Sixth day...	Twelfth day.	Calomel purge.
8. Fifteenth. Negro man, age 27. "Got lime in eyes." History of gonorrhea two weeks ago.	Sixth day...	Practically well 6th day. Quit after 10th day.	After 6th day $ZN.SO_4$, gr. i, t.i.d., at home.
9. Fourteenth. White man, age 20.	Fifth day...	Seventieth day: Conjunctiva became granular.	After 7th day $AgNO_3$, 1 per cent., at clinic.
10. Second. Mulatto man, age 22. Very bad case; ulcer of cornea on 3d day.	Seventh day.	....	$AgNO_3$ gr. v, after 7th day. Tonic after 8th day. After 10th day cleansed ulcer once daily with enzymol.

To sum up: Our hospital reports show that from 1903 to the present time 30 cases, comprising a total of 34 eyes, were treated by "immersion" in 10 per cent. argyrol. In at least 12 of these cases the diagnosis was confirmed by microscopical diagnosis. In the cases not so confirmed clap was present or slow-healing corneal ulcer appeared early and the conjunctivitis persisted long. In the apparent exception, case 17, which quit practically well on the tenth day, it will be noted that the patient only presented himself for treatment on the twenty-first day.

In the 10 positive cases given in table 1 corneal ulcer appeared but twice (Nos. 5 and 10). In one negative case (13) although the ulcer was central, the vision on discharge was 20/xx. Out of the whole 34 cases not only was no eye lost, but none was left with leucoma of any consequence. The average duration of treatment ran from 18 days in the smallest group of 6 cases, to 22 and 23 days in two groups comprising 20 cases. Considering only the 10 positive cases given in the table, pus formation ceased once on the second, twice on the third, twice on the fourth, twice on the fifth, twice on the sixth and once on the seventh day of treatment.

Table 2.—No Microscopical Examination or Microscopical Diagnosis Doubtful, But Uretheral Gonorrhea or Early Corneal Ulcers or Both.

Day of disease.	No pus on	Discharged.	Other treatment.
11. Third. White man, age 23. Smear doubtful; "probable."	Sixth day of treatment.	Fortieth day.	After 6th day, $AgNo_3$, 2 per cent., once daily at clinic. Later Zn. Sulph. carb., gr. ¼, t.i.d.
12. Seventh. White man, aged 40. Smear "not typical."	Third day...	Forty-ninth day. ..	After 3d day, $AgNO_3$, 1 per cent., once daily.
13. Third. White man, age 42. Ulcer on third day of disease; conjunctiva granular.	Sixth day...	Sixty-eighth day. ..	After 6th day, $AgNO_3$, 1 per cent., once daily.
14. Third. White man, age 35. Ulcer on third day of disease.	Third day of treatment.	Twenty-third day of treatment.	After 8th day, $AgNO_3$, gr. ½ to 1 oz. daily.
15. Fourth. Mulatto man, age 26. Urethral gonorrhea; ulcers and iritis, 4th day of disease; severe case.	Fourth day.	Eighty-fifth day: Slight marginal nebulæ. Practically well 61st day, but nebulæ treated longer.	After 8th day, $AgNO_3$, 1 per cent., once daily. Atropin.
16. Fifth. Negro man, age 25. "Struck in eye by cockroach"; urethral gonorrhea; bad case.	Not stated.	Thirty-third day...	After 30th day, $ZuSo_4$, gr. i to ounce t.i.d.
17. Twenty-first. (?) Negro man, age 20. Urethral gonorrhea.	Fourth day.	Tenth day quit cured.	None.

I can offer no explanation of the variation in the time of cessation of pus formation. Cases 2 and 5, in which it ceased on the second and third day of treatment, were very severe; cases 7 and 8, in which it persisted to the sixth day, were mild. This suggests that it depended most upon the fidelity with which the patient and his friends carried out the treatment. Although the unaffected eye was never protected in any way, save by the instillation of the 10 per cent. solution every other time it was applied to the diseased one, in not one of the 30 monocular cases did it show the slightest sign of infection.

While it is undesirable to extend this paper by the relation of cases, I desire to recite two examples of the severe type with which we have had to deal. The notes are given without alteration, just as they were made day by day in the clinic.

Case 1—(No. 5, Table 1).—H. T., a mulatto laborer, aged 27, presented himself for treatment on May 31, 1905. The patient though well nourished, looks rather ill. He says the right eye has been slightly sore for two days and became swollen last night. Right eye. Cannot be opened wide enough to take V. L. E., V. = 20/xx. The lids, especially the upper, are dusky, greatly swollen and brawny. Pus flows freely from between them. It is barely possible to catch a glimpse of the cornea by drawing up the upper lid as far as possible; when this is done the palpebral conjunctiva seems to be coated with a clinging membrane like that lining an egg shell. So far as we can see, the cornea is clear. A smear is taken and sent to Dr. P. E. Archinard, the pathologist, for examination. The dangers of his condition are deeply impressed upon the patient and he is ordered a fresh 10 per cent. solution of argyrol to be dropped into his eye every 15 minutes day and night.

June 1, 1905. Less pus. Lids less swollen. The upper one can now be lifted far enough to see that the palpebral conjunctiva is occupied by a "bacon fat" infiltrate like that described by German text writers in conjunctival diphtheria.

June 2, 1905. Still less pus and swelling of lids, but an erosion of the nasal margin of the cornea has appeared. The report on the smear is positive. No change in treatment.

June 3, 1905. No pus; no pain. Ulcer clean and healing. Now $AgNO_3$ — gr. ss. to oz. 1 at clinic.

Aug. 16, 1905. Practically well; using yellow oxide of mercury salve for nebula.

Case 2.—(No. 10, Table 1).—R. C., a mulatto laborer, age 22, came to the clinic May 30, 1906. General appearance good. Says he woke up yesterday morning and found right eye sore and swollen. The lids of right eye are swollen, dusky and extremely brawny. The upper lid cannot be everted. A moderate amount of thick yellow pus squeezes itself between the lids. The conjunctiva is thickened and elevated around the cornea, which is clear. Questioned, he admits having gonorrhea three weeks ago. A smear is taken. The patient is warned of his danger and ordered argyrol 10 per cent., instilled every 15 minutes day and night. The smear is positive (V. R. = 20/lxx L = 20/xv).

May 31, 1906. The eye feels more comfortable; browniness is decreased, secretion slightly diminished. On the temporal margin of the cornea, close together, are three-minute infiltrations. There is one the size of a small pin-head just below the margin of the pupil. Find that patient has not been supplied with absorbent cotton and has been wiping away excess of argyrol with same handkerchief continually.

June 1, 1906. Browniness much less; secretion decidedly diminished. The three marginal infiltrations have run into a narrow shallow ulcer. The central infiltration is unchanged except that it, as well as the marginal ulcer, is deeply stained with argyrol. Patient is kept at clinic and soaked with argyrol every 15 minutes for more than two hours. Atropin is instilled once. Since early yesterday he has been supplied with argyrol from the hospital because we were doubtful of the quality of that he was buying.

June 2, 1906. Reports that his medicine gave out at 4 a. m. and he had no treatment till he reached the hospital at 9 a. m. Lids are flaccid; pus about the same as yesterday. The corneal ulcers are deeply stained with argyrol and have not progressed. The one near the center, which can best be examined, is a minute, clear, shining pit, with no area of surrounding infiltration.

June 4, 1906. Secretion decidedly less; lids much more flaccid. The corneal ulcers have perhaps increased slightly in depth. Around the lower half of the corneal margin an elevated ring of infiltration now shows more plainly because the chemosis has subsided. Specimen taken on June 2, shows gonococci, but not so numerous.

June 5, 1906. Pus formation is practically at an end. The ulcers appear perhaps a shade deeper. Complains of feeling feverish; temperature 99½ degrees, and tongue is coated. Calomel and soda grains vii each, to be followed by a saline in the morning.

June 6, 1906. Lids perfectly flaccid. Ulcers a trifle larger and showing a shade of infection. This morning he slept "quite a while" and had no drops. Infiltration of conjunctiva about cornea greatly diminished. No pus. Touch palpebral conjunctiva with $AgNO_3$ gr. v. Argyrol only every ½ hour at night.

June 7, 1906. No secretion. The central and marginal ulcers have almost run into one. This means that the central one is about four times its original size. Now about ⅛ of an inch in diameter. Both ulcers are a little deeper and the central one slightly infected. Put on exlixir of bark, iron, strychnin.

June 8, 1906. The central ulcer has joined the marginal one by a narrow band; it remains slightly infected while the marginal one is clear. Make a smear by rubbing lower palpebral conjunctiva. Smear negative.

June 9, 1906. Smear having proved negative begin to clean up ulcers once daily by soaking with 50 per cent. enzymol. $AgNO_3$ gr. v. is applied daily.

June 12, 1906. Doing well; ulcers healing.

June 22, 1906. General injection much less. For four or five days has been using argyrol only once every hour day and night.

June 25, 1906. Practically well. Slight leucoma down and inward not involving pupillary area V. R. and L. = 20/xx.

It is seen that I do not use cold applications. They seem to me risky and inconvenient and to add to the discomfort of the patient. The experiments of Dr. Standish have further convinced me of their uselessness. I have come to depend upon the 10 per cent. solution because I have observed no advantage in the stronger. By greatly increasing the density of the solution, I should fear to promote osmosis from the tissues, and so interfere with the penetration of the salt. This point, however, is certainly still *sub judice.*

Courage of ones' conviction is required to persist with argyrol alone in the treatment of such cases as these, especially when we see ulceration of the cornea begin; but if we have the courage to refrain from excessive manipulation and all else that may irritate and abrade the inflamed tissues, it will meet with its reward.

Says Ernest Thomson, in the *Ophthalmoscope* for May, 1906: "Darier, ever ready to champion argyrol, relates a case of gonorrheal ophthalmia in which argyrol was the main weapon used. Day and night the eye was bathed out with permanganate (0.30 to 1,000) and then flooded with argyrol 10 per cent. every half hour. Darier at his visit used 25 per cent., and occasionally protargol 25 per cent. The eye was out of danger in four days. Silver nitrate was not employed at all. The article extends to eleven columns of the periodical and reads as dramatically as the account of a battle."

One notes the slight sarcastic tang, but one notes also that had there been fewer medicaments employed the battle might have been less loud and exciting. Darier vitiates his experiment by the employment of several drugs, as we so often do in medicine. This, I believe, was wholly to the detriment of his patient; nevertheless, the argyrol solution having been used freely and frequently day and night, the eye was out of danger in four days.

This paper having already transgressed in length my wish and expectation, I refrain from advancing, as I had intended, any collateral evidence.

In the *Ophthalmoscope* for January, 1906, Mr. James Hinshelwood, of the Glasgow Eye Infirmary, relates his experience with argyrol solutions in many other affections of the eye. As his experience corresponds quite closely with my own, permit me to close by submitting the following:

CONCLUSIONS.

1. The treatment of gonorrheal conjunctivitis with argyrol is efficient, provided it is instilled often enough (every 15 to 30 minutes) to keep the diseased tissues practically immersed in the solution.

2. The instillations must be continued day and night so as to render the immersion constant and afford the gonococci no chance of unchecked activity.

3. Until the formation of pus has wholly or virtually ceased the eye should not be irritated by any manipulation or the instillation of any other substance.

4. The less virulent course of the disease when so treated confirms the belief that more strenuous methods often abrade the weakened epithelium of conjunctiva and cornea and open ways of invasion to the gonococci.

5. As always, the best results are had when the remedy is thoroughly applied in the beginning of the disease. This can be done no matter how swollen or brawny the lids; a thing not possible with less diffusible liquids or with those which must be applied to the everted lids. It is excusable to repeat that eversion is dangerous in the early stage when the epithelium is softened and pus formation still profuse.

6. Under this plan corneal ulcers are uncommon and when they do appear are held in check and do not produce widespread destruction. Corneal ulceration, then, far from forming a counter indication gives an additional reason for its vigorous employment.

7. Argyrol is not a powerful astringent; therefore, as soon as pus formation has ceased and the lids have become flaccid, $AgNO_3$ solutions should be applied to the everted lids once daily to hasten the reduction of the conjunctiva.

Soaking corneal ulcers once a day in a 50 per cent. solution of enzymol seems to cleanse them, as well as the conjunctiva, and thus promote recovery. During this period the frequency of the argyrol instillations should be gradually lessened.

8. In monocular cases the safety of the unaffected eye is secured by instilling the argyrol solution but one-half as often as in the infected eye.

9. The method is far less painful, especially in the acute stage, than any other yet proposed. This is an advantage not merely

of good feeling, but enables us to treat many, who even at the cost of an eye, refuse to tolerate severer methods.[2]

10. I have never observed argyrosis following the use of argyrol.

PRIMARY TUBERCULOSIS OF CORNEA.

EUGENE SMITH, M.D., AND HENEAGE GIBBS, M.D.

DETROIT, MICH.

(Illustrated.)

Mrs. O. C. T., aged 44, weight about 170, in perfect health, consulted me Dec. 23, 1901. Left eye had troubled her for nine months, during most of which time she had been treated for interstitial keratitis. Pain was absent until about three months before consulting me, when a severe attack of an inflammatory character set in (glaucomatous). Status præsens.—Slight circumcorneal injection, cornea opaque except a line 2 mm. wide around the periphery. Luster of cornea normal—T + 2. Through the transparent margin of the cornea, a white growth could be seen filling about two-thirds of the anterior chamber, extending backward from the cornea. There was no evidence of corneal ulceration. I enucleated the eye the following day and had it examined at the Detroit Clinical laboratory, when it was pronounced tubercle of the cornea. There is no history of tuberculosis in her family, nor any further appearance of the disease in herself. There has never been any abrasion of the cornea.

The cornea was incised around about three-fourths of its circumference that it might be everted to expose the growth, which was seen to be trefoil in shape, consisting of three separate bodies, one quite large and two smaller ones, of smooth surface, occupying two-thirds of the cornea. Descemet's membrane was bulged, but not perforated.

A letter dated July 31, 1906, states with the exception of an attack of "erysipelas of the face" this summer there has been no sickness since the operation and no further evidence of tubercle.

TUBERCULOSIS OF THE CORNEA.

This small mass of tubercles occupied the posterior third of the cornea and was entirely confined to it, except at one small spot in the circumference, where a small tubercular mass had formed in the ligamentum pectinatum iridis, involving slightly the root of the iris and extending nearly to the pars ciliaris retinæ. It is evident, from the stage of its growth, that it was much younger than, and therefore secondary to, the larger growth in the cornea.

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[2] From 1893 to 1903 only 39 cases out of 157 remained under treatment until discharged. During the past three years 31 cases out of a total of 59 cases remained under the argyrol treatment until discharged. The discomfort of frequent instillations during the night is less than one imagines. The application being painless, by the second night the patient is rarely awakened.

The tubercles in the cornea were in every stage of development and could be studied from their incipiency. In the anterior unaffected portion the lymph spaces between the laminæ were much distended; further back an increase of the corneal corpuscles was apparent, and then numerous straight (not tortuous) blood capillaries appeared. These varied in size but were all capillaries,—had no muscle coat. In some places as many as six or seven radiated from a common center, and at this point the tubercles were formed. First there appeared numbers of small round cells staining deeply (leucocytes), then an alteration in the capillary blood vessels could be noticed, the walls became thicker and the nuclei in them increased, small protuberances having a closely packed row of nuclei in the periphery with a homogeneous center were formed and these gradually increased in size and became multinucleated, or giant,

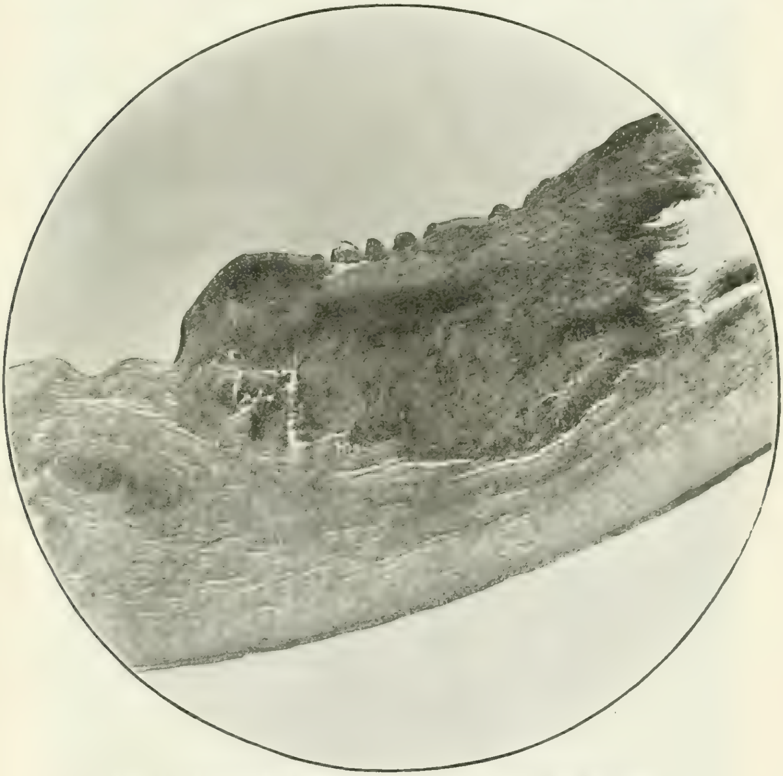

Fig. 1. Showing tumor in posterior portion of cornea.

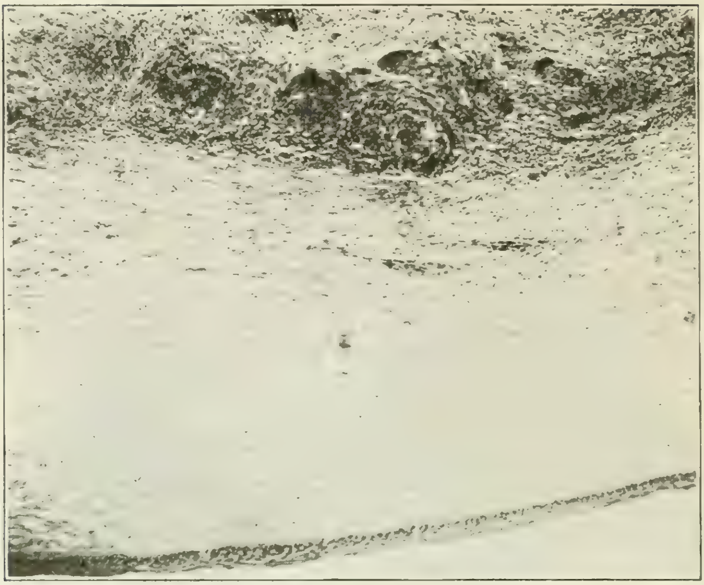

Fig. 2.—Vertical section, showing part of tubercle and anterior portion of cornea with epithelium.

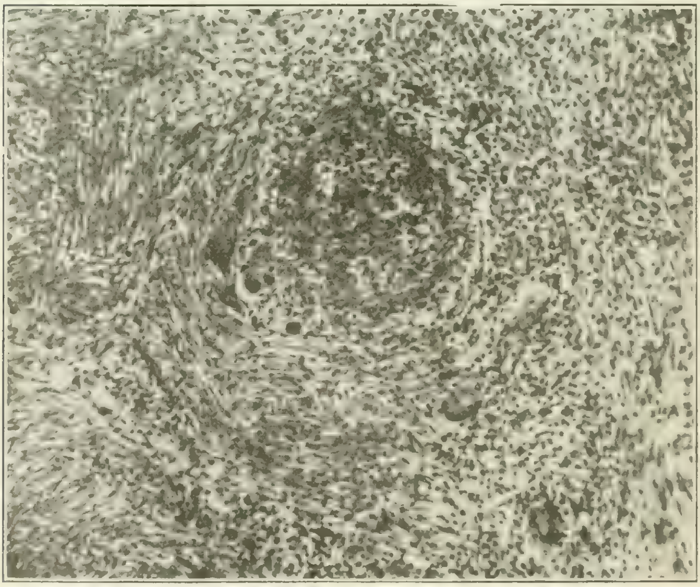

Fig. 3.—Tubercle before degeneration has commenced.

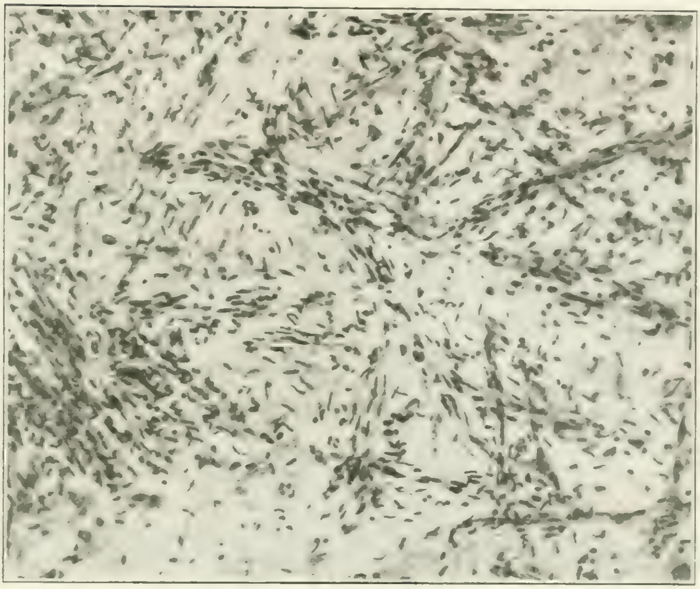

Fig. 4.—Newly formed blood vessels.

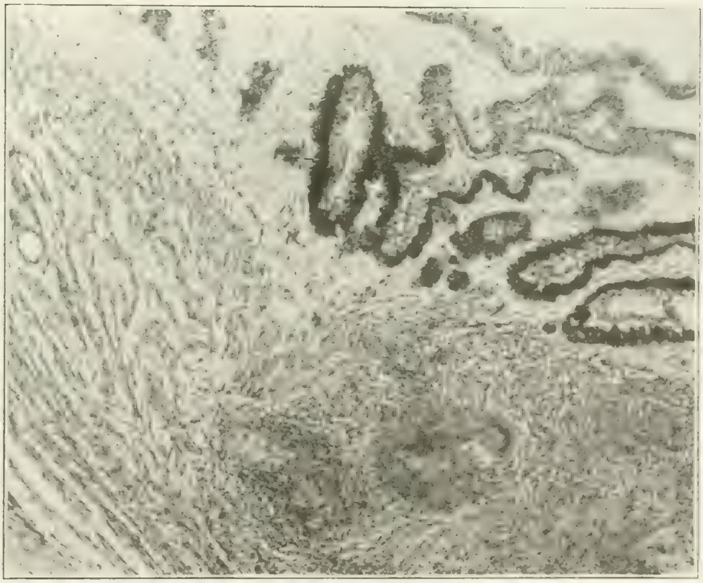

Fig. 5.—Showing tubercle in base of iris. Secondary.

cells. In the larger ones the nuclei only appeared on one side of the periphery of many, the other side having been cut off in making the section. This process was traced in so many cases that there is little doubt the giant cells, in this case, were formed in this manner. I have seen them formed in a similar way from the tubuli seminiferi in tuberculosis of the testis.

The formation of such a number of blood vessels in an avascular structure like the cornea, and their relation to the formation of tubercles, is a very interesting point; and another is, that in none of thees vessels was there any red blood corpuscles; there was complete hemocytolysis and the red cells were represented by brown iron free granules of hematoidin.

These tubercles were in some places formed in a more or less circular manner, enclosing a space where a process of degeneration appeared to be going on. The connective tissue corpuscles were becoming atrophied, and the ground work presented a granular appearance. Chemical reaction also was altered and it showed somewhat the appearance of fibrous connective tissue after too prolonged action of the x-rays through the epidermis. It was a process of necrosis, such as is seen in acute miliary tuberculosis in the lungs; it was not caseation.

A very careful examination of sections of this specimen for tubercle bacilli was made by two skilled observers working independently, and using several staining methods, and not a single bacillus could be found.

There are some very interesting points in this case. In the first place, as far as I know, it is the only one on record of true tuberculosis of the cornea, which it undoubtedly is morphologically. Then the presence of a toxin with such diversified action that it can cause the formation of numerous blood vessels in a structure which is normally without any, and this as the commencement of a morbid change, and at the same time possess such hemolytic power that it can destroy all red blood corpuscles in its field of action, places it in a position where we want to know more about it.

VISUAL TEST TYPES, WITH ESPECIAL CONSIDERATION OF THE NEEDS OF ARMY SURGEONS (Sehproben-Tafeln mit besonderer berucksichtigung des militärärztlichen Gebrauchs). By Dr. Berthold Kern and Dr. Reinhold Scholtz. Published by August Hirschwald, Berlin.

FISSURES IN THE MEMBRANE OF DESCEMET PROBABLY DUE TO HIGH MYOPIA.

CASEY A. WOOD, M.D.

CHICAGO.

(Illustrated.)

During recent years cases exhibiting peculiar linear defects in the endothelial lining of the cornea have been reported. In each instance these clefts or fissures have been associated with a distended globe. Among others, Axenfeld, Reis, Seefelder and Sidney Stephenson have observed this condition in the enlarged eyeball of buphthalmus; Fleischer and Stephenson in myopic eyes; Axenfeld in keratoconus, while Wintersteiner has described endothelial clefts in intraocular tumor.

Seefelder has proven, histologically, that the lesions are actual fissures or cracks in the posterior tissues of the cornea, due to mechanical rupture of its lining epithelium.

In July, 1906, a girl, aged 10, was brought to me because of the accidental discovery that she could not see with her right eye. She had suffered from adenoid vegetations in the nasopharynx and enlarged tonsils. These had been removed with subsequent improvement in her general health, although she still suffers from "indigestion," constipation, insomnia and other evidences of malnutrition.

She is the only member of her family who gives a history of marked ocular defects. For more than a year it was noticed at school and during her study hour at home, that she held her book unusually close to her eyes. During the past year she has also complained of asthenopic symptoms, such as frontal headache, heat of the eyes, photophobia, etc. Still more recently she has been unable to read without blurring, or to distinguish clearly writing on the school blackboard. The eyelids have also been red, and there has been some morning discharge with adherence of the lids. The mother had noticed, on examining the right eye during the previous week, "streaks running across the pupil."

There is now a marked hyperemia of both ocular and palpebral conjunctivæ in each eye; a little mucus adheres to the lid margins and a few flakes (examined bacteriologically and nothing of importance discovered) in the sac. The tension is normal in each eye, as are the pupil reflexes. The pupillary diameter is 2 mm. greater on the right side in all conditions of light and shade. The diameter of the right cornea is 1 mm. longer than on the left side. The right anterior chamber is not noticeably deeper than the left. Vision in the right eye is finger counting at 10 cm., but no Jaeger types can be read. V. L. = 20/20 minus and Jaeger 1, with fair range.

The patient was thoroughly atropinized and her refraction determined. Various tests showed her to have 20 D. of myopia in the right eye; compound hyperopic astigmatism, left. There was very little improvement in vision with the correcting glass before the right eye.

Spectacles bearing a plane glass, right, and the proper lens (cyl. + 0.75, ax. 75° sph. + 0.50) before the left eye gave complete relief with perfect vision, and she is now going to school without ocular symptoms.

The chief interest in the case centers in the ophthalmoscopic appearances of the right eye. The fundus was fairly well seen to present the usual gross myopic changes, although the vitreous and other media (except the cornea) were clear. There was, however, no view of possible minute changes by either direct or indirect method.

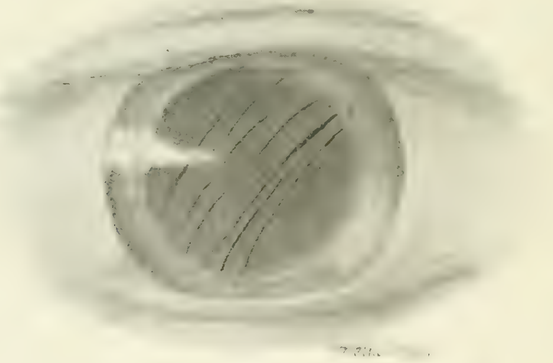

Fig. 1.—Fissures of Descemet's membrane; right eye.

On simple inspection of the cornea a number of fine, nearly parallel, oblique and apparently reddish, or reddish white lines could be easily seen, apparently deeply placed and running over the pupillary area of the cornea and on either side of it towards the limbus. On dilating the pupil and using a Coddington lens with the oblique illumination it can readily be determined that these lines are not superficial but affect the posterior layers of the cornea. If, during this inspection, the eye be slowly rotated, the lines seem to have a double contour and resemble the superficial markings of "crackle" glass. They are of varying lengths and nowhere stretch across the entire corneal circle. No other alterations in the cornea were discovered. There was no staining with fluorescide of potassium. Mrs. Center has made for me a drawing of the affected eye and the illustration gives a fairly good picture of its anterior segment.

The following references furnish a fairly good account of the conditions just described:

LITERATURE.

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Sydney Stephenson: A Clinical Note Upon Clefts of Descemet's Membrane. The Ophthalmoscope, June, 1906, p. 321.

Th. Axenfeld: Zur Zenntnis der isolierten Dehiszenzen der Membrana Descemeti. Klinische Monatsblätter für Augenheilkunde, August, 1905, p. 157.

Hugo Wintersteiner: Uber Hornhantveränderungen beim Neuroëpithelioma (Glioma) retinae. Archiv. für Augenheilkunde, Band 32, April, 1896, p. 154.

THE PRESENT STATUS OF THE EYE AND EAR TESTS FOR SCHOOL CHILDREN.

Frank Allport, M.D.

CHICAGO.

The annual systematic examination of school children's eyes, ears, etc., by school teachers has grown into a recognized necessity in most cities and states, even where such examinations are not required by the proper health or educational authorities or by an act of the legislature. Thousands of teachers perform these examinations of their own volition, without even a suggestion from their superior officers. Nevertheless, these examinations *should* be made under proper authority and control, and should be recognized as an essential part of each year's curriculum. As is well known, the following resolution has been passed by many state boards of education and health and by many state medical societies:

> Whereas, The value of perfect sight and hearing is not fully appreciated by educators, and neglect of the delicate organs of vision and hearing often leads to disease of these structures; therefore, be it
>
> *Resolved,* That it is the sense of the American Medical Association that measures be taken by boards of health, boards of education and school authorities, and, where possible, legislation be secured, looking to the examination of the eyes and ears of all school children that disease in its incipiency may be discovered and corrected.

In order that it may be clearly understood how the various states stand on this matter, I have prepared the following table which will demonstrate just which state boards of education and health have passed the above resolution, and which state medical societies have done the same.

State boards of education which have endorsed the tests.	State boards of health which have endorsed the tests.	State medical societies which have endorsed the tests.	State legislatures which have ordered the tests to be made.
Texas.			
Kansas.	Kansas.		
Minnesota.	Minnesota.	Minnesota.	
Colorado.	Colorado.	Colorado.	
Wisconsin.	Wisconsin.		
North Carolina.	North Carolina.		
Vermont.	Vermont.		Vermont.
	Illinois.	Illinois.	
	New York.	New York.	
	Montana.	Montana.	
	Indiana.	Indiana.	
	Connecticut.		Connecticut.
	Ohio.		
	Maine.		
	New Hampshire.		
	Michigan.	Michigan.	
	Utah.		
	Pennsylvania.		
	North Dakota.	North Dakota.	
	Rhode Island.	Rhode Island.	
	Alabama.	Alabama.	
		South Dakota.	
		California.	
		Massachusetts.	Massachusetts.
		Arizona.	
		West Virginia.	
		Washington.	
	New Jersey.	New Jersey.	
		Kentucky.	
		Indiana.	
		Louisiana.	
		Nebraska.	

It will also show which state legislatures have passed the idea as a law, and it should not be forgotten that the American Medical Association, the State and Provincial Boards of Health of North America, and the American Public Health Association have endorsed the plan.

The best law which has yet been passed is the one recently enacted in Vermont, and I would recommend this as a model law, at least from our present standpoint. Of course, the appropriation for the furnishing of the proper testing apparatus, etc., would have to be increased in larger and more thickly populated states than Vermont. The Vermont law is here given:

SECTION 1.—The State Board of Health and the Superintendent of Education shall prepare, or cause to be prepared, suitable test-cards, blanks, record books and other needful appliances to be used in testing the sight and hearing of pupils in public schools, and necessary instructions for their use; and the Superintendent of Education shall furnish the same free of expense to every school in the state. The superintendent, principal or teacher in every school, during the month of September in each year, shall test the sight and hearing of all pupils under his charge, and keep a record of such examinations according to the instruction furnished, and shall notify, in writing, the parent or guardian of every pupil who shall be found to have any defect of vision or hearing, or diseases of eyes or ears, with a brief statement of such defect or disease, and shall make a written report of all such examinations to the Superintendent of Education, as he may require.

SEC. 2.—The state auditor is hereby directed to draw his order on the state treasurer for such sums and at such times as the Superintendent of Education (with the approval of the State Board of Health) may require to carry out the provisions of this act. The total expense under this act shall not exceed six hundred ($600.00) dollars in any biannual term ending June 20.

SEC. 3.—This act shall take effect July 1, 1905.

Inasmuch as this matter is now quite generally and thoroughly understood, and has already made a significant impression in many states, it would seem as if the time was ripe for a general effort in medical circles to still further emphasize the plan, with the ultimate purpose of legislative endorsement. Probably the most encouraging field for such efforts will be in those states where considerable work has already been done. For instance, in Minnesota the plan has been endorsed by both the Board of Health and the Board of Education, and also by the State Medical Society. It should, therefore, with this backing, be easy to go before the legislature at its next meeting and secure the passage of a law similar to that of Vermont. I understand that it is now quite certain that this will be done in Colorado. In Kansas (the state boards of education and health having endorsed the idea) the physicians of the state should secure action in their state medical society, and then go before the legislature for its approval. The same is true of Wisconsin and North Carolina. Illinois physicians should convince the state board of education of the necessity of such action and then attack the legislature. The same is true of New York, Montana, Indiana, Michigan, North Dakota, Rhode Island, Alabama and New Jersey. I understand they have great hopes of a law in New Jersey at the next meeting of the legislature. It is unnecessary to draw further deductions from my table, but it is evident that the pioneer work of this movement has been done, and that it only remains for our profession to press energetically forward in order to reap the benefits of such labor. Let me urge that the different states take the matter up at once, as some legislatures meet this winter, and that at the next meeting of the American Medical Association a central committee be appointed which shall be duly authorized to solicit action in the various states.

72 Madison Street.

TREATMENT FOR ACUTE AND CHRONIC ABSCESS OF THE LACHRYMAL DUCT AND FOR THE RELIEF OF EPIPHORA.

J. Winter Wamsley.

PHILADELPHIA, PA.

(Illustrated.)

In the issue of The Ophthalmic Record, August, 1904, the author described a tube for lachrymal drainage, and illustrated the three cardinal points necessary for the construction of a proper lachrymal tube, viz., the caliber to overcome capillary attraction, adjustable length, and the correct place for a tube to rest upon the floor of the nose, so as not to drop out of place; the tube has a rounded extremity with vents at the base (Fig. 1).

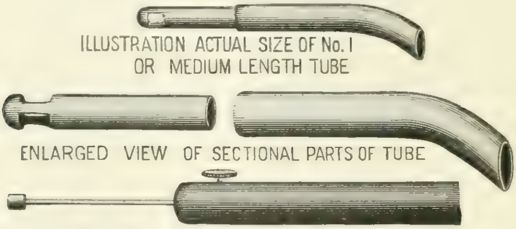
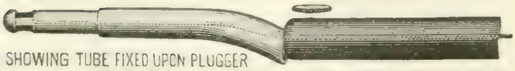


ILLUSTRATION ACTUAL SIZE OF No. I OR MEDIUM LENGTH TUBE

ENLARGED VIEW OF SECTIONAL PARTS OF TUBE

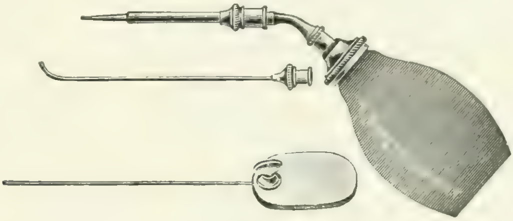
ILLUSTRATION OF PLUGGER OR INTRODUCER

Fig. I


SHOWING TUBE FIXED UPON PLUGGER OR INTRODUCER AND READY FOR PASSING IN THE DUCT

So far as the tube principle of operation was concerned, this worked to a nicety, but an objectionable feature was the regurgitation of nasal secretions when the patient was in the act of blowing the nose. Further experiment decided that it was best not to use a tube for the relief of epiphora, except under some very rare conditions. In this paper a method of treatment is suggested, which is much in common with the present popular judgment upon the matter. Large dilatation of the lachrymal canal is for the most part a very faulty method of treatment as the general phenomena of tear drainage should not be lost sight of, the importance of never opening the sac or canalicus or resecting the puncta, for as soon as either of these procedures are done, the apparatus is destroyed, the sac will collapse and the heart of its normal function is dead; any part of the puncta should not be cut, as there is something about the sphincter action of the puncta designed by nature that makes it complete.

There are large sluggish infiltrated punctaes that in some cases may stand from the eye-ball, but this would not prevent a good result from a proper method of treatment. For if the action of the upper puncta be normal, and the sac in working order, the upper puncta would take in some of the surface lachrymation to be again thrown out at the lower lid; being the avenue of least resistance if the lower puncta or canaliculus had been cut. Most of the so-called strictures of the duct are purely functional from an inflamed canal or retention of pus débris, that when the diseased condition is relieved it is followed by normal drainage. Certainly after all signs of inflammation and pus have ceased, there may be slight glueing in some part of the apparatus, but it is of a most delicate nature always and does not take much to break it asunder, the forceful injection from a syringe will do it in the majority of instances.



The present plan of treatment is by a process of repeated washings with a conical tipped syringe (Fig. 2) being introduced generally at the lower puncta and washing out the contents of the sac through the upper puncta. Sometimes the puncta is swollen or indurated so that it is difficult to introduce the tip of the syringe, then the puncta should be first dilated with the conical needle only, as instruments of two blades for dilatation are very likely to tear or cut; such an instrument has of necessity to be made small and the thin blades act almost like a knife, but the conical needle dilates evenly. As to the construction of the syringe, Figure 2, the most important detail is the conical tip, as the tip should be conical, for then as it is introduced into the puncta it gradually plugs up the opening so that there can be no egress of fluid from the syringe. A conical tip with thin pipe extremity should not be used, there is a danger of abrasion, and it makes the tip so long that the cone does not reach the puncta to properly close it up, then the pipe extremity of a tip is likely to injure the inner wall of the sac.

The tip is one-half inch long, and at the base of the cone, corresponds to No. 15 English wire guage, at the point of the cone it is so made that the point should just enter the No. 23 slot of the same guage, the length of the canula complete is about 2 inches, the shank of the syringe is made angular for convenience of application; the bulb is made by using a No. 27 Davidson red rubber aural springe and cutting off the top; a soft rubber ball of about 4 drachms capacity is used for the reason that there is no trouble in keeping washers in condition as would be if the syringe was made of barrel and piston; even if a metal barrel and metal piston is used there is an advantage in using a rubber ball, in that during the application of the tip to the puncta there is a softened medium of action from its flexibility which makes it easier to apply the syringe and less likely to be cumbersome or cause an abrasion from the tip by having the syringe stiff for the movement during application. The cone of the syringe, so described, will not only allow of a fair stream, considering the delicacy of its point, but it will be, if the point is thus regulated, so that the canula will go in any puncta and not have to be pushed along far in the canaliculus so that the cone will plug the puncta tightly and prevent the egress of fluid.

In introducing the conical canula, the tip is made to engage in the puncta, then given the horizontal direction of the canaliculus, taking care not to force the tip too strongly in; the lid should not be left lax as there would be danger of the tip scratching the inner wall of the sac; with the hand holding the syringe, after the tip is engaged, the finger of the other should draw the lid towards the canula.

In the cut of illustration (Fig. 2) the long pipe canula, is an extra attachment for washing the cavity of the middle ear. With this syringe, when an injection is made through the lower canaliculus, pus débris can be seen to make its exit through the upper puncta; plain sterile water followed by solutions of peroxide of hydrogen or carbolic acid or other antiseptics in their proper strengths should be used. In the beginning of the treatment there will most probably be no fluid pass through to the nose, until after a few days when all pus and swelling has subsided, if the wire lachrymal probe is to be used at this time for purposes of diagnosis or stricture, the probe should always be passed after the injection, for if the probe, from some mishap, should cause an abrasion, then followed by an injection, it would likely produce an infiltration into the cellular tissue. The wire probe is used only for the purpose of breaking any adhesion which may have taken place in the duct from inflammatory conditions. Experiment proved that the proper size of such a probe should be No. 21 English wire guage, the wire is made of silver and has a flat handle with set screw, the wires are 3 inches long and the points rounded. A probe larger than the one stated will fit too extremely tight to give facility of passage and a larger one than is suggested in many instances is like to break the puncta. In silver the wires are sufficiently stiff and pliable enough to hold a curve which is ordinarily necessary from the arching of the brow. In passing the probe, it should be passed along the canaliculus until the inner wall of the sac is met, without undue pressure, then by a continued sliding of the point of the probe along the nasal wall of the sac, the handle of the probe is lifted; the point of the probe almost finds its own way in the canal, if an abutment is met no force should be used, but the same maneuver tried over again until the point properly engages in the passage, then, when so, the probe is gently guided down the canal until the floor of the nose is felt. The probe is withdrawn directly and if there has been any glueing of the duct in any part, there may be seen a suspicion of blood following the probe out of the puncta, too, this blood may come from scarifying the inner wall of the sac if much force has been used. There may be no blood at all from the duct unless the probe were forced too strongly upon the nasal floor, in this instance when the nose is blown after the passage of the probe (which should be done always for purposes of observation) the blood is less frequent from the duct than it is from the nasal floor, therefore care should be used not to press hard at the terminus. It is of no advantage to allow the probe to rest in the canal for a few minutes but it should be directly removed. Owing to the traction upon the lower lid when the probe is in place, it draws the lid to the nasal side, but this is natural.

To avoid an epiphora secondary to a diseased duct, it is a good plan to occasionally pass the probe during the systematic injections, and always after the injections as has been stated, it might be that several days of treatment with the probing would elapse before fluid would finally pass to the nose. As an average two weeks is the amount of time to relieve the ordinary cases of chronic pus, even in some more difficult cases of some slight bone involvement it is not infrequent that nature will take here a disposition to cure.

For the treatment of lachrymal fistula, there is a ready means in closing the opening with external injections of a solution of bichlorid of mercury, 1/500 or 1/250 and injecting the cavity thoroughly, the latter fluid will produce a proper stimulation of the fistulous tract, and tying a tight compress locally will cause the opening to close.

Bichlorid of mercury in these strength solutions causes an inflammatory swelling, not too much, but sufficient that even the next day healing begins in the fistulous tract. No doubt fistula in the aged and decrepit, in which blood fibrin has diminished, would be difficult to heal. There is no difficulty in relieving acute and chronic abscess of the sac by the method herein described. There are cases, no doubt, in which there may be senile atony of the sac or loss of lumen with no disease or infection, and in which chronic epiphora from large normal secretions causes much annoyance to the patient. These cases with bony stricture and those that have unfortunately had the canaliculus cut are relieved of the epiphora by the use of a tube, but under these particular conditions, if epiphora is not enormous, it is better not to use a tube, as it in itself, and at its best, has annoying features, an ordinary amount of lacrimation will take care of itself, but to carry the latter point to the theory that removal of the sac lessens lacrimation is a mistake. There is no fact on which to base the theory.

The common practice of constant large probing is a mistake. If the object is to relieve epiphora, if the passage is enlarged, it certainly does not last long and would mean eternal continuation, for within a few days after cessation of probing there is a natural infiltration of the duct's lining membrane; to make the canal permanently patulous by the latter method can not be done. To approach and return to natural function, after diseased conditon has subsided, is undoubtedly the ideal.

ANGIOMA OF THE CONJUNCTIVA SUCCESSFULLY TREATED BY INJECTIONS OF ABSOLUTE ALCOHOL.*

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OMAHA, NEB.

(Illustrated.)

Although nævi of the skin of the lids are not very uncommon, and the dilatation of the vessels sometimes extends from the skin over into the conjunctiva, angiomata of the conjunctiva proper are among the rarest of new growths. In twenty-four years of ophthalmic practice I have seen no case except the one which forms the subject of this article. In 1897 Fehr (*Archiv. f. Ophthal.* 44, 661) could collect only sixteen reported cases, to which he added one more. Lagrange, in his classical work (Tumeurs de l'Oeil, Paris, 1901), refers chiefly to the work of Fehr, while Saemisch, in the last edition of the famous German Handbook, reports, in all, some thirty-two cases of this affection.[1]

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* Read before the Botna Valley Medical Society, Aug. 9, 1906.

Such tumors are either telangiectatic or cavernous; and, while some of them seem to have been of traumatic origin, the majority are undoubtedly due to some congenital defect, and hence are brought to the attention of the physician during the first decade of life. They may be either smooth, lobulated, or even pedunculated. They are of a dark red or purplish hue and some of them are, to a certain extent, erectile, increasing greatly in size when the head is hung down. Extirpation is, when practicable, probably the best method of treatment, and this should be preceded by the passage of a double ligature through the base of the tumor, the latter then

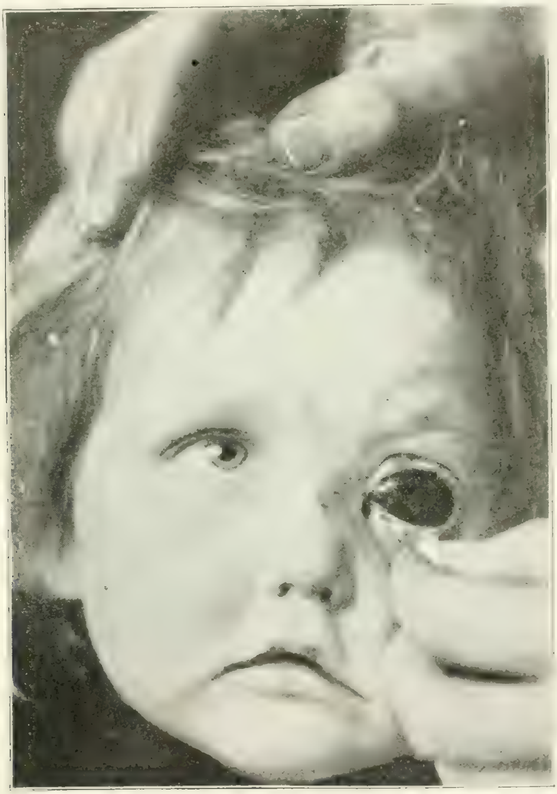

Fig. 1. Angioma of bulbar conjunctiva.

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[1] Since this paper was read I have seen the report of a case by Ahlström (Deutschmann's Beiträge z. Augenheilk., 54, p. 25), and of two by Castelain (Recueil d'Oph., July, 1906, p. 434), not included in the compilation of Sæmisch and Castelain reports having found 57 cases, including his own.

being tied off in two parts. Electrolysis has also been recommended. Perhaps the most brilliant result hitherto recorded (which I had not heard of at the time of treating my case) is that of Blessig (*S. Petersburger Med. Woch.*, 1867, xii, p. 342), who cured an unusually large conjunctival angioma by several injections of perchlorid of iron. He used at first a solution, 12/100, but this caused such violent pain and vomiting that he afterward used a solution only half as strong, and in the course of a few months obtained a perfect cure with no perceptible loss of tissue. In spite of the excellence of this result, the best authors agree in condemning this form of treatment as too dangerous, on account of the possibility of fatal thrombosis or embolism, a conclusion to which they have probably been led by the unfortunate experience of general surgeons with the iron injections; but, as their conclusions have been drawn from the treatment of comparatively large tumors with larger injections than are necessary in treating the eye, I question whether this wholesale condemnation is justified.

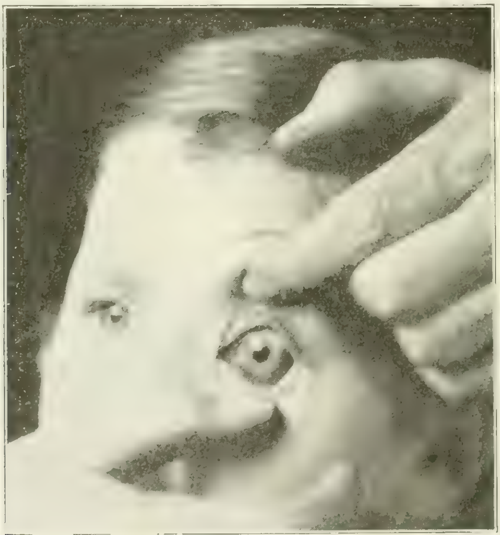

Fig. 2. Subject of Figure 1 after injections of absolute alcohol.

My own patient was a girl, 4 years old (Fig. 1), whose parents noticed a small red tumor in the neighborhood of the left caruncle when she was 2 months old. This grew steadily, but slowly, up to the time of my first seeing the child, Jan. 8, 1906. S. P. Perfectly healthy child. Right eye normal. Left eye apparently pushed outward 2/3 lines, by dark red, slightly lobulated tumor, which, including the semi-lunar fold extends from the caruncle to 3/16 of an inch beyond the center of the corneal margin both above and below, reaching out into the fornices, but not invading the palpebral conjunctiva nor the skin. The tumor is about ¼ inch thick, overlapping the inner margin of the cornea slightly and flattening out gradually toward the border at the outer side of the cornea. The conjunctiva on the surface seems smooth and normal. There has been no pain nor inconvenience.

From the extent of the tumor and the fact that it probably extended back along the inner side of the globe for some distance I at once rejected extirpation, except as a last resort, and since, not having heard of Blessig's case, I had heard of injections of iron mentioned only to be condemned, I first thought of trying Wyeth's method of injecting hot water as near the boiling point as possible. I had previously tried this plan with a nævus of the skin with a fair result, but on second thought I decided that for a tumor on the surface of the eyeball the method is open to strong objections. The hot water injections have to be made with a rather large needle with much haste, and considerable tissue necrosis often results. I figured that, aside from the danger of injuring the cornea directly with the hot water, the danger of necrosis and suppuration of the sclera or cornea was too great to be needlessly incurred. I also rejected electrolysis, as I had seen an eye lost from its use, by a surgeon in treating an angioma of the skin of the upper lid. I, therefore, tried injecting two or three drops of the so-called absolute alcohol of the drug stores into several parts of the tumor. The injected portions at once assumed a pale grayish-pink color, and after a week or ten days the tumor was much reduced in size. The injections were then repeated, the needle being carried, part of the time, ½ inch into the orbit along the inner side of the globe. After this, alcohol was injected every two or three weeks for the next two months; at the end of this time the original tumor had practically disappeared, but now the conjunctiva from the outer 1/3 of the corneal margin to the external canthus, which had seemed normal, became dark-red and I began to fear an extension of the growth around the deeper portions of the globe, and more alcohol was injected, ¾ inch deep, along the inner wall of the globe and ½ inch deep into upper and lower fornices. After this the improvement was steady, and when she went home at the end of April, 1906, there was no tumor visible and the only trace of the former trouble was a moderate congestion of the inner half of the conjunctiva, which was steadily improving. As both the parents and the family physician were requested to let me know at once if there were any signs of a return of the growth, I judge that the child is still doing well.

The injections were always made during light chloroform anesthesia and were followed by only moderate swelling and very little pain, at no time was there any sign of breaking down or necrosis on the surface. During the whole course of the treatment the only symptom that caused the least anxiety was a swelling of the left side of the face which developed two or three days after the last deep injections had been made into the orbit. The child seemed depressed and the cheek below the zygomatic process was quite puffy for several days; but this all cleared up without any special treatment.

So far as I can learn, alcohol injections have not been used before in the treatment of any form of angioma, but in such a case as mine, where excision is out of the question, they are certainly of great value. Over the hot water injections they offer advantages which are most evident to any one who has tried the latter. They can be performed with the utmost deliberation, the size of the injection can be accurately regulated, and the necessary preparations are so insignificant that each sitting occupies but a few minutes. I have tried the same plan with several birthmarks of my own and of my assistant, Dr. Patton, with excellent results. The injections cause quite sharp pain for a few minutes, but this could, of course, be prevented by previously injecting a little cocain into the surrounding tissue. Whether the alcohol injections can replace the hot water injections and other forms of treatment for the larger angiomata, such as those which occur in the upper lip, I am not certain. I am now treating two cases of angioma of the skin of the upper lid with alcohol. In one of these the improvement, while slow, has been so marked that I think a perfect cure will result. In the other the improvement has not been so steady, and it is quite likely that enough discolored tissue will remain to make me supplement the injections by excision. I can well believe that to get the best results in these larger tumors it will be necessary to clamp off part or all of the growth while the injection is made, and for a minute or so longer, in order to prevent a too rapid diffusion of the alcohol.

A CASE OF NON-TRAUMATIC IRIDO-CYCLITIS PLASTICA WHICH EVENTUATED IN SYMPATHETIC OPHTHALMIA.*

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CHICAGO.

This 16-year-old lad developed a typical irido-cyclitis plastica in the right eye three years ago without any known cause whatsoever, which ran a typical course, ending in practical blindness, leaving but a faint light perception; it affected the other eye in the same manner within six weeks after the original attack. The sympathizing eye underwent the same severe processes of inflammation, which upon subsidence left the eye with but scarcely 20/200 vision. No known etiology can be assigned for the primary attack in the right eye. As far as could be determined, the entire alimentary tract was normal, neither did he receive a direct or indirect blow or injury to the right eye which in any way could be assigned as the cause for the irido-cyclitis plastica. Though the proper line of treatment was given at the time, nevertheless it proved of little value. In the right eye there was occlusion and exclusion of the pupil, extensive posterior surface synechiæ, iris bombé, a rather shallow anterior chamber, the iris fairly well atrophied, and the tension of the globe questionably normal. The left eye has numerous opacities in the vitreous and a typical clover-leaf iris with a moderate sized plug of the lymph in one of the recesses; the fundus details were faintly outlined with the ophthalmoscope and the tension normal. For a year or so, the right eye became now and then quite irritable and with each attack the left eye seemed to sympathize.

A broad iridectomy, well into the root of the right iris, was made; an attempt to remove the plug of lymph succeeded, the iris bombé disappeared, the eye quieted down, and after the faithful use of dionin for a number of months the vision rose from light perception to 20/200 without any correction.

Another interesting feature in the case is that three weeks ago the lad developed a typical attack of classical quiet iritis in the left eye. There was but a trivial scleral injection, absolutely no pain and the iris stubbornly resisted the action of the atropin; however, the atropin in conjunction with the dionin finally restored the original clover-leaf iris. The vision in this eye sank from 20/200 to light perception. But after this treatment above mentioned, the vision again rose to about the same point within four weeks.

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* Presented at the Chicago Ophthal. Society, Oct. 9, 1906.

At no time did the instillation of fluorescin in the right eye show any discoloration or penetration of the cornea, thus indicating that no injury had been sustained at a prior time. It may also be stated that the accessory sinuses were normal at all times, thus a direct infection from this source can be eliminated.

In looking up the literature on this subject I find several similar cases of non-traumatic irido-cyclitis plastica have been reported as being typical cases of sympathetic ophthalmia. In all of the cases the irido-cyclitis plastica was not due to injury or direct infection of the eye.

REPORT OF A CASE OF SCLERITIS.*

Benjamin P. Croft, M.D.
GREENFIELD, MASS.

I refrain from any theoretical consideration of the diseases of the sclera, not only because my title limits me to the report of a case, but also in recognition of the fact that what limited literature there is upon the subject is probably as accessible to you as it is to the writer. Cases of primary scleritis are not so common with me, but what I feel justified in reporting one when I have had it under observation.

Case No. 1355 was a woman, 32 years of age, married, and with one child. There was no previous personal ocular history, but she reported being subject to periodical attacks of muscular rheumatism. The only family history of possible significance was that of an attack of so-called rheumatic iritis in a brother some years previously.

I saw her first on March 10, 1906, and about seven days before this the right eye became painful, sensitive to light, and manifested some increase in lacrimation. The family physician was called, drops were prescribed, and at the end of three days the eye quieted down. This immunity from symptoms lasted 48 hours, when the pain suddenly returned, accompanied by the other symptoms mentioned, all of which were greatly intensified. Again the family physician was called, drops and hot applications were ordered and applied faithfully, but with very little alleviation of the discomfort, and I was finally called to take charge of the patient.

At this time the patient complained of intermittent attacks of severe pain, neuralgic in type, in and about the eye and right side of the face, marked intolerance to light, increased lacrimation and diminution of vision. In addition there was more or less nausea. My first examination showed considerable blepharospasm, moderate injection, marked ocular congestion and edema, the latter especially marked near the external canthus. The pupil was decidedly dilated, but circular, and the corneal transparency was sufficiently reduced to prevent a clear view of the fundus and nerve head. An intelligent estimation of the tension was out of the question owing to the exquisite tenderness of the globe.

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* Read at the November meeting of the New England Ophthalmological Society.

In endeavoring to reach a diagnosis I considered the possibility of (1) the presence of a foreign body lodged in the upper cul-de-sac, (2) an attack of acute glaucoma, and (3) the possibility of acute iritis of possible rheumatic or idiopathic origin. A foreign body was ruled out only by lack of history, for inspection of the upper conjunctival area was rendered practically impossible for the same reason that I was denied an estimation of tension, with the edema added. The ocular congestion, hazy cornea, widely dilated pupil, reduced vision, neuralgic pain and nausea forced me to seriously consider an acute glaucoma, and the fact that 1 per cent. atropin had been used during the previous 24 hours, though accounting for the dilated pupil, did not ease my mind any, and the reduced vision and the inability to get a proper view of the fundus only added to my burdens. Iritis was at least doubtful from the circular pupil and absolute lack of adhesion marks on the anterior capsule, a careful search for which was made under as bright illumination as the eye would tolerate.

I tried to reduce the conjunctival chemosis with adrenalin, using a strength of 1 to 4000, and, as this did not make any impression, I resorted to full strength, or 1 to 1000, but with hardly more satisfactory results, though my history shows that I noted a slight diminution of the congestion everywhere except in the area near the external canthus, and also that this area seemed more tender than other parts of the globe. I concluded to contract the pupil and ordered pilocarpin. As the patient was completely prostrated, she was advised to go to bed, and a nurse was secured. The family physician gave hypnotics to allay the pain and full doses of salicylate of soda for constitutional treatment.

The pupil contracted under the influence of the pilocarpin and I allowed it to remain so for 48 hours, but the patient obtained little, if any, rest during this time, hot applications being the only local treatment that eased the symptoms any.

On March 12 I ordered a solution of 1 per cent. atropin and 3 per cent. dionin every three hours, and, though this dilated the pupil fully, yet it was noted that the dilatation was only temporary, there being a contracted pupil reported at almost every three-hour period. On March 13 the patient was more comfortable and the external appearance of the globe was more normal. On this date I again used a 1 to 4000 solution of adrenalin, and I extract from my record to the effect that the drug blanched the ocular conjunctiva and a distinct elevation of the sclera in the upper external quadrant was noted. This prominence was about ¼ inch in diameter at the base and over it the ocular conjunctiva was freely movable, as ascertained by a cotton-tipped probe following anesthesia produced by a drop of cocain. The slightest pressure over this area caused intense pain. During the next 24 hours this elevation subsided and the patient was comfortable, and the atropin kept the pupil fully dilated.

On March 16 the pain suddenly returned and the nurse reported difficulty in keeping the pupil dilated and the appearance of a new elevation about ⅛ of an inch below the site of the first. The eyeball became intensely congested and edematous, especially over the site of the new scleral involvement, and the adrenalin again failed to make any impression upon it. The patient complained of great pain when the eyelids closed over the globe. I was able to hold the iris contracted with a 2 per cent. solution of atropin, and gentle massage with plain vaselin was instituted, followed by a drop of 1 to 4000 adrenalin.

Within the next 24 hours the eye quieted down. swelling and tenderness disappeared and the patient obtained a restful night and comfortable day. The vision cleared and a good view of the fundus was obtained and found to show only a venous engorgement. The immunity from symptoms lasted four days, during which time the conjunctiva blanched readily under the use of the adrenalin and the sclera showed nothing but a few moderately engorged vessels at the site of the former elevations.

During March 21 the patient complained of much discomfort from radiating pains in eye and right side of face, the latter became so tender that the slightest pressure was unbearable. On the 22nd the tension became elevated. conjunctiva congested and edematous, especially over a small area of the external sclera, just below the horizontal plane of the globe, and pressure here produced great discomfort. The cornea became hazy, iris dilated and for the first time this muscle showed a slightly muddy discoloration, the pupil was circular, small and not very mobile, vision was reduced to fingers at ten feet with difficulty.

By the end of another day the scleral elevation reached the size of a small pea, and my record says that it was decidedly more dark in color than the overlying engorged conjunctiva and that it was splendidly outlined by the use of a 1 to 4000 solution of adrenalin which reduced the conjunctival congestion. I ordered 1 per cent. atropin to be used once in three hours, but after three instillations the nurse reported inability to secure any appreciable effect upon the iris, and I then made a personal attempt to dilate the pupil, but I was obliged to use a hot 2 per cent. solution of atropin, cocain and dionin every five minutes for an hour before I was successful. At the end of this period of time the pupil was three-fourths dilated and showed an attachment of the iris to anterior capsule on the nasal side. This was the first clear evidence of an iritis and I maintained the use of the mydriatic until the pupil dilated to the maximum, uncovering a second adhesion in the lower part of the iris. When these adhesions were torn away the patient at once became more comfortable. The atropin was reduced to 1 per cent. and, in spite of the congestion of the ocular conjunctiva, I decided to use dionin along with it. As the internal use of sodium salicylate did not seem to control the disease, Gardiner's syrup of hydriodic acid in dram doses, four times daily, was substituted.

From March 23 to 28 the eye gradually quieted down, the patient became more and more comfortable, and was able to be out of bed practically all day. On the morning of March 28 the nurse reported the eye as being more irritable and difficulty in maintaining mydriasis, the pupil contracting during the interval of atropin instillations. The eye again became congested, cornea hazy, and vision reduced correspondingly. By using adrenalin a distinct elevation of the sclera in the lower inferior quadrant, and seemingly composed of a mass of tortuous vessels, was made out and as before pressure here caused much pain. Atropin was used to the limit of tolerance, and though the same resistance of the iris to the drug was noted, yet mydriasis was accomplished, and this attack lasted but thirty-six hours.

On April 2, or thirty days after the onset of the symptoms, the patient was able to visit the office when I noted a slight ciliary injection, clear cornea, small, active pupil, clear media, and congested fundus. Vision was 20/200 and was brought up to 20/30 with a minus two dioptre sphere. The left vision was 20/15 without a glass.

On April 6 I noted vision as 20/50 improved to 20/20 with minus 1.50 sphere, and that the external half of the visible sclera had assumed a distinctly bluish tinge and conveyed the impression of being unusually thin in structure. I did not see the patient again until May 8, and my record shows that at this visit she reported having had little if any discomfort except in convergence which rapidly tired the eyes. Vision was 20/15 without a glass, and the bluish tinge of the sclera was still present, although not nearly so pronounced as on April 6. The patient was discharged.

I summarize the report as follows:

1. The duration of the active process was about six weeks.

2. Five distinct elevations of the sclera were noted, each accompanied by an exacerbation of the symptoms. Two of these were located in the upper external quadrant of the visible sclera and the remaining three in the lower external quadrant. The one adjacent to the external canthus being far more painful, probably because of the greater resistance at the lid angle.

3. During the height of the attack the iris strongly resisted the action of mydriatics.

4. A typical iritis was not diagnosed until the third week and during the fourth exacerbation.

5. The conjunctival and scleral congestion was very resistant to the action of adrenalin.

6. The myopic refraction during convalescence and probably during the course of the disease.

7. The photophobia and increased lacrimation were extreme and it was the most painful ocular disease that I have ever encountered.

Vitreous Opacities in Young Girls.—C. J. Kipp, Newark, N. J. (*Journal* A. M. A., June 16), quotes Hirschberg's reference in regard to certain enigmatical white tissue formations in the lower anterior portion of the vitreous body in girls and young women. Two cases are reported in which only one eye was affected, and Kipp remarks that such cases are probably not uncommon and have doubtless been observed by most ophthalmologists. He reports a third case, however, in which the condition, coming on during good health, was extensive in both eyes, causing practical blindness for a time. The opacities, however, gradually disappeared and vision was restored, though latterly cataractous symptoms have intervened in from 20 to 25 years after the first condition was observed. Kipp thinks that there were probably hemorrhagic effusions in the vitreous from the ciliary body antedating the opacities. The condition in this case so closely resembled retinal detachment as to deceive an experienced specialist. The participation of the choroid in the morbid process was shown by the appearance of an atrophic spot.

Reports of Societies.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting Oct. 8, 1906.

Dr. George F. Fiske, President.

Dr. F. A. Phillips presented a case of methyl alcohol amblyopia with consecutive atrophy. The patient had spilled about a quart of the alcohol on the floor and over his foot. After remaining in the room several hours he felt dizzy and noticed objects were indistinct. Some 12 hours later he wakened after a short sleep to find himself totally blind. Two days later Dr. Phillips found the pupils dilated and fixed, vision nil, marked deep tenderness on backward pressure of the bulb, the papilla normal, slight overfilling of especially the veins. Under treatment, vision for large objects returned about the tenth day, and of fingers at four feet in a month. Some atrophy was noticeable two weeks after the onset and was complete in 6 months. Dr. Phillips thinks the case is one of acute retrobulbar neuritis, with strangulation sufficiently near the bulbus to impair the return venous circulation, although producing no disc changes.

Dr. Henry Gradle reported the accidental observation of an apparent cure of a case of spring catarrh of some 14 years' duration while the patient had been using alum spring water freely in the eyes at Hot Springs, Ark. All the discomfort has disappeared and a mere trace of the follicles remains in one eye only; both eyes show the typically yellowish, slightly thickened conjunctiva of atrophic vernal catarrh. As the alum spring contains no ingredients which could explain its presumptive influence in this case, the result may possibly be due to the proven radio-activity.

Dr. Thomas Faith showed a case of marked arteriosclerotic changes in fundus, accompanied by central bilateral chorioiditis. The patient was a hard working man of 48 without history or evidence of lues or alcoholism, with arterial tension increased to 145 mm. during diastole and 185 mm. during systole. Vision, which had been poor since an attack of typhoid five years ago, was improved under treatment from one-fifth to one-fourth normal. Dr. Faith called attention to (1) the central chorioiditis which Nettleship has attributed to the arterial sclerosis in these conditions, (2) the occurrence of the most marked changes in the inferior temporal branch of the central retinal artery as mentioned by de Schweinitz, (3) the fact that the notches in the veins, where they are crossed by the arteries, have almost disappeared under the influence of nitroglycerin, (4) the improvement in vision under treatment.

Dr. G. F. Suker exhibited a case of non-traumatic iridocyclitis plastica in which the second eye became sympathetically involved three weeks later. A subsequent iridectomy upon the primary eye improved the vision somewhat.

Dr. G. F. Suker presented specimens of two intraocular tumors in neither of which could a diagnosis be made by the transilluminator because of recent hemorrhage surrounding and covering the tumor, giving a perfect red reflex and no shadow.

Dr. J. F. Burkholder presented as his entrance thesis a paper on "Fundus Lesions with Normal Vision." The essayist emphasized the fact that many fundus lesions other than choked disc may exist without interference with central vision and exhibited 17 elaborate paintings in color, including cases of pseudo-papillitis, chorioditis disseminata, central chorioiditis, marked perivasculitis of the retina, and luetic, leukemic and hemorrhagic retinitis.

E. V. L. Brown, *Sec.*

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting Nov. 17, 1906.

Dr. Geo. F. Fiske, President.

FISSURES IN THE MEMBRANE OF DESCEMET PROBABLY DUE TO HIGH MYOPIA.

Dr. Casey A. Wood presented a girl of 10 whose mother had noticed "streaks running across the pupil." Examination reveals numerous, deeply placed, nearly parallel, white lines coursing obliquely across the pupil area of the cornea, though nowhere spanning its entire width. When the eye is rotated under oblique illumination these fine lines are seen to have a highly refractile, double contour and resemble rods or threads of glass. No other alterations of the cornea are to be found and fluorescin does not stain the stroma. Myopia of 20 D. is present, and the cornea measures 1 mm. more in width than its fellow. The usual gross changes of myopia are to be seen in the fundus and, although the media are clear, vision is reduced to the counting of fingers at 10 cm. (published *in extenso* in The Ophthalmic Record, Dec. 19, 1906).

Dr. E. V. L. Brown stated that Wintersteiner was the first to call attention to fractures of the membranes of Bowman and Descemet, holding that tears in Bowman's membrane were more frequent than in Descemet's. Reis denied this relation and reported a series of 9 dehiscences in Descemet's and none in Bowman's. Seefelder corroborated these figures, finding 4 tears in Descemet's to 1 in Bowman's.

Dr. Mortimer Frank called attention to the cuts of two cases recently published by Sidney Stephenson in the *Ophthalmoscope*.

Dr. Casey Wood drew the attention of the society to the fact that of all the men who have written on this subject, about ten in number, from Wintersteiner, who first spoke of it in 1886, to Sidney Stephenson, the latter seems to be the only one who refers to the one factor constantly present in these cases—the distended globe, which seems to prove beyond peradventure that the trouble is purely a mechanical one and that the fine-drawn theories have no bearing at all. Descemet's membrane merely gives way under the distension incident to the increased curvature of the cornea.

CATARACT OF APPARENT SUDDEN DEVELOPMENT.

Dr. Frank E. Brawley exhibited a boy, aged 22 years, who, four days before he applied for relief, had arisen one morning to find his left eye blind. Examination showed the lens cataractous throughout and more densely so in sectors; a red reflex, but no fundus details were obtainable. There had been no pain or any other evidence of inflammation about the eye. The family history was negative; there had been no syphilis, constipation or nasal trouble. The urine was negative. An attack of influenza had confined him to his bed for three weeks one year ago. Vision has slightly decreased since the blindness was first noticed, and the patient can now only count fingers at a half-meter. The color fields are gone and the field for white has been reduced about 20 degrees.

Dr. H. B. Young, Burlington, Iowa, stated that one must consider here the possibility of an indirect injury to the eye through an unrecognized fracture of the orbit. Some years ago he had seen a patient with both eyes so affected—from a bruise to the outer rim of the orbit received during a fall downstairs. One year later the one lens presented the appearance of an incompletely opaque senile cataract and the other that of a juvenile cataract; vision had begun to fail two months after the injury, although there were no objective findings at that time. Dr. Young had recently been consulted in a medicolegal case in which the point at issue was whether or not an opacity at the posterior pole may so mature as to warrant cataract operation within two months.

Dr. Henry Gradle asked whether an examination was made under high mydriasis to see whether or not there were any changes in the periphery of the lens. He once saw a gentleman, aged 50, who claimed to have had a cataract for only a few days, with vision reduced to about 20/100, but he had an incipient cataract in the other eye which took a normal course. He thought that in all probability the patient's attention had been suddenly directed to a condition which had existed for some time.

Dr. Casey Wood asked Dr. Brawley whether or not he noted the tension in the affected eye.

Dr. Brawley stated that the fellow-eye had been examined with dilatation *ad maximum*, but the lens and fundus were normal and vision 20/20; Jæger 1 was read at 30 cm. The tension and pupillary reactions of the affected eye were normal.

DEPOSIT OF LEAD IN THE CORNEA.

Dr. Wm. H. Wilder exhibited a patient, a lady, who, while walking through the fields about six weeks ago, had gotten something on her fingers and rubbed them against the eye, evidently abrading the cornea. She consulted a physician, who gave her a lotion. Immediately after using it the cornea became and has remained perfectly white; ciliary injection is considerable. Dr. Wilder thought that it was a case of lead deposit in the substance of the cornea. A peculiar feature of the case is that, while the epithelium did not reform over the abrasion, there was no tendency to deep ulceration.

SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeing Oct. 16, 1906.

Dr. G. E. de Schweinitz, Chairman, presiding.

Dr. Howard F. Hansell reported a case of bilateral abducens paralysis, traumatic in origin. The patient was a laboring man of 31 years who was struck on the back of the head by a large block of ice. He was unconscious for 12 hours and afterward suffered with severe headache. Three weeks after the accident he complained of diplopia and the dizziness and bewilderment dependent upon the diplopia. The characteristic symptoms of double abducens paralysis were present. Dr. Hansell attributed the cause of the paralysis to meningitis rather than to the fracture at the base because of the late appearance of the diplopia and the absence of the usual signs of fracture. He called attention to the differential diagnosis between conjugate palsy of lateral movement and the paralysis of divergence occasionally seen in hysteria and the abolition of function of the individual muscles.

Dr. E. A. Shumway showed a patient with double rupture of the sclera, by the blow of a fist. The two openings were at opposite ends of the horizontal meridian of the cornea about 3 mm. back of the corneoscleral junction. Through both openings vitreous and pigmented tissue were hanging at the time of the first examination. A low-grade cyclitis set in ten days after the accident, but slowly disappeared under treatment with mercury, and salicyclates internally, and atropin, dionin, leeching, and subconjunctival injections locally. With the rupture there were associated iridodialysis of the upper half of the iris, subluxation of the lens, and intraocular hemorrhage. Enucleation had been advised, on account of danger of sympathetic ophthalmia, but was declined. Dr. Shumway had been unable to find a similar case of double rupture in literature, and was inclined to consider it unique.

Dr. de Schweinitz said that he had never before seen a patient with a double rupture of the sclera of exactly this character. He had watched the case with Dr. Shumway and the eye had the appearance as though a sharp instrument had penetrated through the ciliary region from one side to the other, but the man was positive that no such instrument had been in the hands of his assailant when the blow was struck. He had been impressed particularly with the good effect of the salt injections in the treatment of the case, and thought that the favorable turn in the case had been due directly to their influence.

Drs. G. E. de Schweinitz and C. M. Hosmer described the microscopic appearances of a congenital tumor of the corneoscleral junction, with gland inclusion, of pinkish-white color, which straddled the corneal margin and was of a size of 8 by 6 mm., and which was associated with a smaller similar growth separated by an opaque margin situated entirely upon the corneal tissue. The growth was covered with stratified epithelium which was analogous to corneoconjunctival epithelium and not epidermal, and the main body of the growth was composed of a glandular and a fibrous portion. The glandular portion was made up of fine acini and ducts, with epithelial cells regularly placed upon an unbroken membrane, and the type of the gland was that of a lachrymal gland, that is, of a serous gland, and resembled in all particulars Krause's gland. They discussed the various tumors which are found in this situation of analogous nature, namely, the true dermoids of the corneoscleral junction, the true but rarely found dermoids of the cornea, and the teratoid tumors, and thought that their own case was more nearly like the one which had been reported years ago by Fuchs, in which, however, the entire tumor had been located upon the cornea, and resembled the teratoid tumors in the presence within it of the acino-tubular gland which has just been described. In their demonstration they showed sections of true dermoids, and also of the teratoid tumor which is ordinarily known as a dermo-lipoma, and which is situated upon the scleral expansion between the superior and the internal rectus, and which at one time was supposed to be a true subconjunctival lipoma.

Drs. de Schweinitz and Hosmer reported two cases of epithelioma of the lid in an early stage, both of which had developed in the eyelids of elderly persons from ordinary flat warts which had been irritated by being picked at and treated with salves. The microscopic examination of the excised growths revealed typically the lesions of ulcerating epithelioma of the skin corresponding to the type of carcinoma basi cellulare. There had not been the slightest return of the growth after two years in one case and fifteen months in another, and the authors pointed out the importance of the early excision of these growths, even when they had not far passed the stage of their wart ancestry, and called attention to the fact that, although the *x*-ray therapy of epithelioma of the lid was brilliant in its results, it was not applicable to lesions of this character, which were much better treated by prompt radical excision. They also reported the microscopic appearances of a growth which had in all respects resembled clinically a sebaceous cyst, but which proved to be an adenoma in which a number of the acini showed a break in the limiting membrane, with an out-wandering of epithelial cells indicating the beginnings of a malignant process and the presence of an adeno-carcinoma, and they again urged the early excision of growths of this character.

Dr. Randall mentioned a case which he had reported before the American Ophthalmological Society, of a spindle-cell sarcoma of the lid, which had been operated on twice before under the impresssion that it was a chalazion. He had recognized the true nature of the growth by the pigmentation beneath the skin surface, and the appearance of the vessels over it.

Dr. Hansell spoke of Dr. Keen's paper on the tendency of warts to become malignant, and agreed with Dr. de Schweinitz that excision should be done in such cases when the growths were small, and before they had commenced to undergo malignant change.

Dr. de Schweinitz, in conclusion, said that he did not want to be understood as condemning the *x*-rays in the treatment of proper cases, but he thought the tendency to wait, and submit small growths to the *x*-rays was too great. When they were small and clearly defined from the surrounding tissue, excision was the proper method.

and was successful. In late stages, when the growths are so large that operative interference would be disfiguring, the x-rays are especially useful.

Dr. Wm. Zentmayer presented a case of embolism of a cilio-retinal artery in a man 21 years of age. In 1901 the patient had had gonorrhea and had infected the left eye. This was enucleated one year later because of secondary glaucoma. On the fifteenth day of June of this year a large dark spot appeared before the sight. V. = 6/vi. Ophthalmoscopic examination showed obstruction of a cilio-retinal vessel at a point just beyond the disc. The opacity in the retina was limited to the area supplied by the vessel, the lower border being festooned, the most dependent portion corresponding to the terminals of the twigs given off from the vessel. Branches from the temporal artery crossed the opaque area and showed on either side of the vessel a narrow band of modified retinal reflex. The macula was preserved. Dr. Zentmayer thought possibly that the reddish reflex on either side of the temporal branches indicated that the nutrition of the retina was here preserved. He believed it strange that if the opacity in the retina in cases of obstruction of the circulation was an actual edema, this edema should be so accurately limited to the area supplied by the obstructed artery, as it is in this case, as it is in cases of branch embolism, and as it is in cases where the central artery has been obstructed, but the presence of a cilio-retinal vessel has preserved the function and the normal ophthalmoscopic appearance of the region supplied by this vessel. He considered that the sequelæ of this case of gonorrhea—namely, total loss of one eye, serious impairment of the remaining eye, and an endocarditis—formed a sad commentary on the prevailing view of the laity and the one-time almost universal teaching that gonorrhea is a harmless affection, causing at the worst a more or less troublesome local condition.

Dr. C. A. Veasey exhibited a case of keratitis disciformis in a male laborer, probably produced by injury from a particle of dirt or stone. The disc-like area of opacity was about 3 mm. in diameter, situated near the apex of the lower inner quadrant of the right cornea, and was much more dense in the center and at the margin than in between. Under magnification the opaque area resolved itself into numerous small dots, but the adjacent cornea was well defined and not infiltrated. The overlying epithelium was roughened, slightly anesthetic, but unbroken, and did not stain with fluorescin. Vision, which was 20/100 in the beginning, was improved to 20/70 after five months' treatment by massage with yellow oxide ointment.

Dr. C. A. Veasey also exhibited a case of fulminant retrobulbar neuritis. The patient, a male aged 39 years, storekeeper in a toystore since boyhood, in apparently good health, had the vision of both eyes totally abolished in 12 hours. The pupils were widely dilated, not reacting to light, and, excepting the total blindness and some deep-seated pain upon pressure of the eyeballs, there were no other symptoms. All examinations were negative, except that the urine revealed a trace of albumin and a few hyaline casts which afterward disappeared. Six days from the appearance of the blindness the vision in one eye began to return, and two days later in the other, so that the fields were those of a right homonymous hemianopsia. A few days later the blind halves cleared up, but the nerves have become atrophic, central scotomata remain, and the vision of the right eye is 1/135 and of the left 6/12.

Dr. de Schweinitz said that Dr. Veasey's second case in many respects resembled those due to methyl-alcohol poisoning, but that cause was apparently absent. It was interesting from the fact that no toxic process had been discovered which would account for it.

Dr. Turner had watched the patient with Dr. Veasey and suggested that the fact that the man was handling lead toys in his occupation indicated the possibility of a lead intoxication. No lead had been discovered in the urine, but he thought this might be due to its elimination by the iodids which had been administered in the treatment of the case.

Dr. Wm. Campbell Posey exhibited a bedside ophthalmic examination case, containing in compact form apparatus and lenses sufficient to make a complete functional examination of the eye.

Dr. H. Maxwell Langdon (by invitation) showed a case of advanced neuro-retinitis associated with nephritis in a young woman 28 years of age. The blood pressure was 235. Except for scarlet fever when a child, and diphtheria six years ago, the patient's history was good.

EDWARD A. SHUMWAY, *Clerk of Section.*

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of Oct. 11, 1906.

Dr. Edward Jackson, of Denver, presiding.

CYSTS.

Dr. D. H. Coover, of Denver, presented a child of 3½ years with a slightly protruding tumor at the inner and upper angle of the orbit, above the upper canaliculus, which was thought by Drs. Stevens and Jackson to be a dermoid cyst. Operation, five days later, showed a subdermal cyst with well-defined wall, about the size of an almond, which was dissected out. Its contents appeared to be sebaceous matter only, but neither the cyst wall nor the contained cheesy matter were examined under the microscope. A case of a tumor of 8 years' standing, in a woman aged 38, over the lacrimal sac, but not communicating with it, was shown by Dr. Coover. Later, puncture by a hypodermic needle revealed gelatinous contents. The cyst was the size of a hickory nut. Removal was advised.

DISCISSION FOR TRAUMATIC CATARACT.

Dr. G. F. Libby, of Denver, showed a man, aged 24, who had received a traumatic cataract from being struck in the eye by a breaking violin string on May 18, 1906. In a week the lens was entirely opaque, and the slight inflammation had subsided. There was no evidence of injury to the cornea, conjunctiva or anterior capsule when the patient first came for examination, August 2. In consultation with Dr. Edward Jackson, September 26, a small discission was agreed upon, and the following day a needle-knife was entered near the outer limbus of the cornea, an incision of 2½ mm. was made in the capsule, and the cortex was gently stirred. There was little reaction, which was readily subdued with ½ per cent. atropia solution. Absorption commenced at once, and, aided by instillations of 5 per cent. dionin solution three times a week, was progressing favorably at the time the case was presented. Further progress, two weeks later.

WOUND OF CORNEA AND IRIS, WITH PROLAPSE.

A child of 13 years, showing the effects of an incised wound of the globe, was presented by Dr. Libby. While cutting meat on Aug. 29, 1906, the knife slipped and made a cut of 8 mm. across the cornea nearly through the iris for 3 mm., with two pinhead perforations and a small prolapse of the iris in the upper angle of the wound. Twenty-four hours having passed since the accident, it was decided, in consultation with Dr. E. W. Stevens, to neither replace nor abscise the prolapsed iris, but to use atropia and cocain freely in the hope of reduction of the prolapse by the dilating pupil. This proving ineffectual, the cocain was stopped and 1 per cent. atropia used twice daily. After a few days the prolapse slightly increased; then the healing corneal incision cut off the protruding iris smoothly and completely, three weeks after the injury, when the vision was fingers at 4 m. in this eye. When shown to this society all inflammatory reaction had subsided and the lens had apparently escaped injury.

Dr. J. A. Patterson, of Colorado Springs, reported a case of traumatic subconjunctival ecchymosis, with a considerable clot, which had absorbed with unusual rapidity under instillations of 2 per cent. dionin once daily for three days. To this case Dr. Jackson added one of hemorrhage into the anterior chamber, which had shown very little absorption until 1 per cent. dionin was instilled once a day for two days, when the clot entirely disappeared.

Dr. A. C. H. Friedmann, Colorado Springs, reported a man aged 30, with monocular primary optic atrophy, who had received specific treatment for nine months before presenting himself for ocular examination on account of diminished vision, which was then 1/4, with contracted field. Dr. Friedmann reported the restoration of normal sight and field under strychnia injections, although the disc remained white and the vessels small and the atrophy had progressed for three years.

Dr. W. C. Bane, of Denver, reported loss of vision in the left eye by a penetrating wound caused by an air-gun. A good deal of chemosis resulted, for which the conjunctiva was incised with good effect. The eye became quiet and the fellow eye remained undisturbed for 5 weeks, when its vision was disturbed by a haze on the nasal side of the field. Enucleation of the injured eye was then done, but without removal of this haze, although central vision was 20/20.

Dr. E. W. Stevens, Denver, reported a case of penetrating wound of the eyeball by a No. 3 shot. After evisceration the reaction had been great, especially the conjunctival chemosis, which was snipped daily. The stitches were taken out, argyrol, white lead and pressure bandage were used. Finally a mitral insufficiency had been found, with dropsy of the legs. Cardiac remedies cured the edema of the legs and the eye.

Dr. A. C. Magruder, Colorado Springs, reported three cases of enuresis in children of 7, 11 and 16 years, in which alleviation or cure had followed wearing a correction of +0.37 to +4.00 D. sph. In corroboration Dr. Coover reported six cases from 6 to 10 years of age cured by correction of their ametropia.

Dr. H. F. Fisher, of Kansas City, reported floating vitreous opacity due to hemorrhage, which simulated a veil suspended from the ciliary body.

Dr. E. R. Neeper, Colorado Springs, reported a case with several floating opacities of the vitreous following enteric fever.

MIGRAINE.

Dr. B. Oettinger, of Denver, described this disease from the neurologist's standpoint, stating thathe believed it was always an auto-intoxication in one predisposed to the disease, was due to ocular.

gastric and other disorders, and should be treated during and between the attacks.

Dr. Stevens called attention to its periodicity, confused vision and "fortification spectrum;" Dr. Coover, to the difference in symptoms in each case, and the retained last visual impression, through an attack; Drs. Patterson and Libby, to hereditary influence; Dr. Sedwick, to migrainous headaches from guiacol taken by himself at two different times; Dr. Ringle, to necessity of quieting influences and great care in measuring refraction in these cases, and Dr. E. O. Sisson, of Keokuk, Iowa, to consideration of heterophoria.

Adjourned. GEORGE F. LIBBY, *Secretary.*

DR. ED. PERGENS (Maeseyck) in the *Centralblatt fur Prak. Augenheilkunde*, describes the different forms of spectacles seen among the Eskimo. He has seen eleven pairs of these so-called spectacles and these were of four forms, all designed as a protection against wind, cold and snow blindness. The simplest form is made of wood of the thickness of two fingers. The inner surface is concave, the outer convex in the vertical axis and there is a slight curve horizontally to fit the face. The points opposite the eyes are reamed out and blackened, the better to diffuse and absorb the light. A slot about 2 mm. wide and four cm. long opposite each eye enables the wearer to see. A slight concavity is hollowed out on the lower edge at the middle to rest on the nose. At each end a small hole serves to fasten on the strings which are tied behind the head. The other forms are modifications of the first, being decorated with a crude form of inlay work or fashioned from bone and polished. Some of the bone spectacles have a round opening about 6 mm. in diameter, but this form is much rarer than the stenopaic slit.

PATHOLOGICO-ANATOMIC FINDINGS IN SPONTANEOUS OR TRAUMATIC DISLOCATION OF THE LENS. (Pathologisch-Anatomische Befunde bei Spontan oder traumatisch erworbenen Linsenverischiebungen). By Prof. v. Michel, Berlin. Published by August Hirschwald, N.W. Unter den Linden 68, Berlin.

Notes and News.

PROF. DR. AUGUST V. ROTHMUND died recently in Munich.

DR. SEEFELDER has located in Leipzig, where he will practice ophthalmology.

DR. JOHN ELLIS, of Chicago, has resumed his practice after an illness of a month.

DR. FRANZ XAVER HAAS, oculist in Augsburg, Germany, is dead in his fifty-second year.

THE NEW executive medical officer of Wills Eye Hospital, Philadelphia, is Dr. S. Lewis Zeigler.

DR. WILLIAM C. Meanor, Beaver, Pa., has been appointed oculist for the Pennsylvania lines, West.

DR. A. NATANSON, Moscow, Russia, has received the appointment of Docent at the University of Moscow.

PROF. DR. ANTON ELSCHNIG of Vienna, has been given the Ottoman order of Medjidje of the third class.

MARRIED.—DR. HARRY VANDERBILT WÜRDEMANN, of Milwaukee, to May Audrey Parker, of Minneapolis.

THE FREE consultations in the eye department of the Tours Medical Infirmary numbered 1,090 for September, 1906.

DR. J. B. LIPPINCOTT, of Pittsburg, Pa., has recently gone to Rome, Italy, where he practices ophthalmology each winter.

DR. GEO. F. SUKER has been appointed instructor in ophthalmology in the medical department of Northwestern University.

FOUR THOUSAND ONE HUNDRED AND NINETY-EIGHT patients were treated at the Stetson Hospital, Philadelphia, during the year ending Nov. 1, 1906.

DR. GEORGE B. SHATTUCK, of Boston, was recently elected president of the board of managers of the Massachusetts Charity Eye and Ear Infirmary.

THE LEGISLATIVE COUNCIL of Memphis, Tenn., recently appointed Drs. Edward C. Ellett and Alexander G. Sinclair oculists to the City Hospital staff.

DR. ROBERT LAIGNER, of Paris, who was formerly chief of Professor DeWecker's clinic in Paris, recently visited Dr. John L. Borsch of Philadelphia.

DR. C. B. COUGHLIN, Peterboro, Ont., member of the Ontario Board of Health, has been appointed principal of the Institute for the Blind at Belleville, Ont.

IN THE Vienna University a new docentship for school hygiene has been instituted and the appointment given to Realschulprofessor, Dr. Phil. Leo Burgerstein.

THE NEW ORLEANS Eye, Ear, Nose and Throat Hospital reports showed 542 admissions for September, 1906, 3,231 consultations, 80 operations and 46 emergency cases.

DR. MARTIN BARTELS, formerly privatdocent of ophthalmology at the University of Marburg, now occupies a similar position at the University of Strasburg, Germany.

AT THE meeting of the International Medical Association of Mexico, held in the City of Mexico, Nov. 17, 1906, W. C. Fallebert, of Calaya, Mex., read a paper on eye strain.

DRS. EMMETT L. JONES and Robert Y. Fechtig have been appointed ophthalmologists and otologists on the staff of the Western Maryland Hospital, Cumberland, Md.

DR. DOLGANOW has been appointed to fill the professorship of ophthalmology at the clinical institute of the Grand Duchess Helene Paulowa, formerly held by Kostenitsch, deceased.

A FREE dispensary has recently been incorporated in Troy, N. Y., in which Drs. Burton S. Booth and Frank M. Sulzman are the attending men for diseases of the eye, ear, nose and throat.

IN INDIANA recently the State Board of Health has given notice that the dry leaves which fall from the trees are not to be burned, as the smoke is a factor in causing eye and throat disease among children.

DR. LEE W. DEAN, professor of ophthalmology in the Iowa State University, visited Chicago recently and attended the meeting of the Chicago Ophthalmological Society and some of the special clinics for eye work.

DR. PARK LEWIS is responsible for the statement that there are 50,000 blind persons in the United States and that two-fifths of these might still retain their sight if proper prophylactic and curative measures had been adopted.

J. C. WILHITE, Webster County, Iowa, was recently convicted of practicing medicine without a license and the decision was affirmed by the Supreme Court on November 14. He called himself a doctor of neurology and ophthalmology.

AMONG THE out-of-town members present at the meeting of the Chicago Ophthalmological Society on November 13th, were: Dr. Albert Bulson, Fort Wayne, Ind., Dr. Young, of Burlington, Ia., and Dr. Adams, of Jacksonville, Ill.

THE FIRST half of the Nagel-Michel "Jahresbericht Ueber die Ophthalmologie" for the year 1905, is now obtainable. The third volume of Parson's Pathology of the Eye is also on the market in England, although not yet obtainable in this country.

DR. JAMES H. BUCKNER died at his office in Cincinnati, Ohio, November 15, after an illness of only two hours. He was oculist and aurist to St. Mary's Hospital, Cincinnati, from 1870 to 1890, and to the Sisters of the Good Shepherd and School Brothers of St. Francis, for forty years.

THE MANHATTAN EYE, EAR AND THROAT HOSPITAL was formally opened on Oct. 30, 1906. The new building is seven stories high with 141 beds. For surgeons who wish to treat their private cases in the hospital, 27 private rooms on the fourth floor are furnished.

THE NEW ORLEANS POLYCLINIC opened Nov. 5, 1906, and will close May 18, 1907. This school is the post-graduate department of Tulane University. In addition to the special clinics held at the Polyclinic the eye, ear, nose and throat hospital is open to practitioners doing this special work.

THE OPTICIANS of New South Wales are seeking to have a law passed in the Legislative Council to license opticians to test eyes. The bill provoked a strong opposition as it provided for licensing certain persons to examine eyes without any guarantee of previous training or competency for the work. It was held over for a third reading to take place in February, 1907.

A CENSUS of the blind is to be taken in the state of New York. A commission has been appointed to investigate the condition of the blind to determine those able to engage in some occupation and to recommend the establishment of industrial schools for this class of the blind. A record will be made also of the causes of the blindness and preventive measures considered.

THE CAMPAIGN of the *Cleveland News* against the irregular practitioners and "healers" is already showing results. Joseph, the "eye healer," who occupied a suite of rooms in the Pythian Temple, has disappeared on account of the publicity given his methods by the *Cleveland News.* He is said to have been driven out of Buffalo two years ago on account of a threatened sentence of imprisonment.

INFIRMARY ELECTION.—The seventeenth annual meeting of the Long Island Throat Hospital and Eye Infirmary, Brooklyn, was held October 2. During the year 2,296 cases were treated, 1,083 prescriptions were given and 387 operations performed. The following officers were elected: Dr. Charles T. Schondelmeier, president and Drs. Rashid S. Baddour and D. Morris Wolley, trustees.

A WEEKLY operative clinic for eye and ear operations has been established at Wesley Hospital, Chicago, by Dr. Casey A .Wood and Dr. Frank Allport. So far a definite data can not be given, although they hope soon to be able to secure the same afternoon every week for the clinic. This new clinic will be along the lines of the well-known Thursday afternoon operative clinic at St. Luke's Hospital, which they inaugurated a number of years ago.

THE SPREAD OF TRACHOMA.—The menacing spread of this affection among the school children of Manhattan and Brooklyn continues and, according to the board of health, there is pressing need in New York City for at least two more hospitals where this disease can be treated. It is estimated that in some parts of the city as many as 75 per cent. of the school children are affected by trachoma, while in Brooklyn about 25 per cent. were affected, and there is need of at least one more hospital in that borough.

DIPHTHERIC OPHTHALMIA.—During the last eight years 42 cases of diphtheric ophthalmia were treated at the Zurich eye infirmary in Switzerland, in charge of Haab. Nearly half of the patients were infants; 13 were under two years, and nine from two to seven years old. There was membrane formation in every case, but diphtheria bacilli were found in only 83 per cent. Antitoxin was injected in 25 cases, and 19 of the patients recovered without complications, but six had perforating ulcers of the cornea and two died of pneumonia. Of the remaining 17, who did not receive antitoxin, three succumbed to pneumonia, one to diphtheria of the throat and one to glioma of the brain. The report is cited in the *Lancet,* Nov. 3, 1906.

The British Medical Association announces the competition for the Middlemore prize for 1907. The Middlemore prize, which consists of a check for $250 and an illuminated certificate was founded by the late Mr. Richard Middlemore, F.R.C.S., of Birmingham, England, for the best essay or work on any subject which the Council of the British Medical Association may from time to time select in any department of ophthalmic medicine or surgery. The council of the British Medical Association now invites essays on the subject of "Ophthalmia Neonatorum," with especial reference to its causation and prevention. Essays should be sent to Guy Elliston, general secretary, 429 Strand, London, England, marked "Middlemore Prize Essay," before April 30, 1907. The judges will report to the council July 3, 1907, and the prize will be awarded at the annual meeting to be held at Exeter, July 30, to August 2, 1907.

A GENUINE CHARITY.—Mrs. William Ziegler, widow of the late capitalist, has supplied funds for the publication of a magazine for the blind. It is the first periodical of its kind to be published in America and it will be distributed free to all of the 70,000 blind. Because of the great cost of printing in raised characters, only a limited number of books have been heretofore published and the blind will greatly appreciate Mrs. Ziegler's splendid charity. The magazine will contain the news of the day, short stories from the leading periodicals and contributions from blind readers themselves. Unfortunately no common typographical standard exists for books for the blind, so there will be extra expense of printing the magazine in the two systems most generally used. So much attention is being paid to the work of educating the sightless that it is strange a uniform style of typography has not been adopted. It is a subject to which attention should be given and the new Ziegler magazine may accomplish something in that direction.

EXAMINATION OF EMPLOYÉS IN AUSTRALIA.—According to the *Lancet*, railway commissioners some time ago decided to institute scientific tests for hearing and uniform in standard on the railways of the different states comprising the Australian federation. (It should be observed here that the roads are under government control.) The results of the examination showed that many of the best men failed. In New South Wales 30 per cent could not pass. Accordingly a deputation of members of the colonial parliament waited on the premier, asking him to urge on the commissioners the necessity of returning to the old practical tests instead of the Holmgren wools, acoumeters and test-types. Later on a delegation from the Amalgamated Railway and Tramway Service Association interviewed the commissioners and asked for the abolition of the acoumeter and wool tests; a modification of the card test: a proviso to the lantern test to enable an employe to appeal for a practical test: that sight and hearing tests should only apply to those connected with the safe working of trains; lastly, that those who had already failed should have an opportunity of being retested under the modified rules proposed. They cited instances of a man who was absolutely color blind being able to pass the wool test, and of another being able to pass the color test without having any sense of comparison in the matching of the shades of a color.

As a result the commissioners agreed to abolish the acoumeter test and substitute the voice test. They also agreed that sight and hearing tests should only apply to those connected with the safe working of trains or those likely to be promoted to positions connected with safe working. The other proposals are under further consideration.

THE STATE of Massachusetts has recently passed a law for the systematic examination of school children, entitled, "An Act to Provide for Protecting the Health of Children in the Public

Schools." The sections of particular interest to ophthalmologists are here given verbatim. Trachoma is named among the infectious diseases which require isolation, dismissal from school and notification of the Board of Health.

Section 3. The school committee of every city and town shall cause every child in the public schools to be separately and carefully tested and examined at least once in every school year so as to ascertain whether he is suffering from defective sight or hearing or from any other disability or defect tending to prevent his receiving the full benefit of his school work, or requiring a modification of the school work in order to prevent injury to the child or to secure the best educational results. The tests of sight and hearing shall be made by teachers. The committee shall cause notice of any defect or disability requiring treatment to be sent to the parent or guardian of the child, and shall require a physical record of each child to be kept in such form as the state board of education shall prescribe.

Section 5. The state board of education shall, after consultation with the state board of health, prescribe and furnish to school committees suitable rules of instruction, test-cards, blanks, record books and other useful appliances for carrying out the purposes of this act, and shall provide for pupils in the normal schools instruction and practice in the best methods of testing the sight and hearing of children. The board of education may expend during the year 1906, a sum not greater than $3,000, and annually thereafter a sum not greater than $1,000 for the purpose of supplying the material required by this act.

Section 6. This act shall take effect on the first day of September in the year 1906.

This is the third state to pass such a law, the others being Vermont and Connecticut. Colorado is also expected to pass a similar law during the coming winter. Why should we not all work for a similar end in our own states. A little enthusiasm and agitation will easily bring this important matter to favorable consideration.

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